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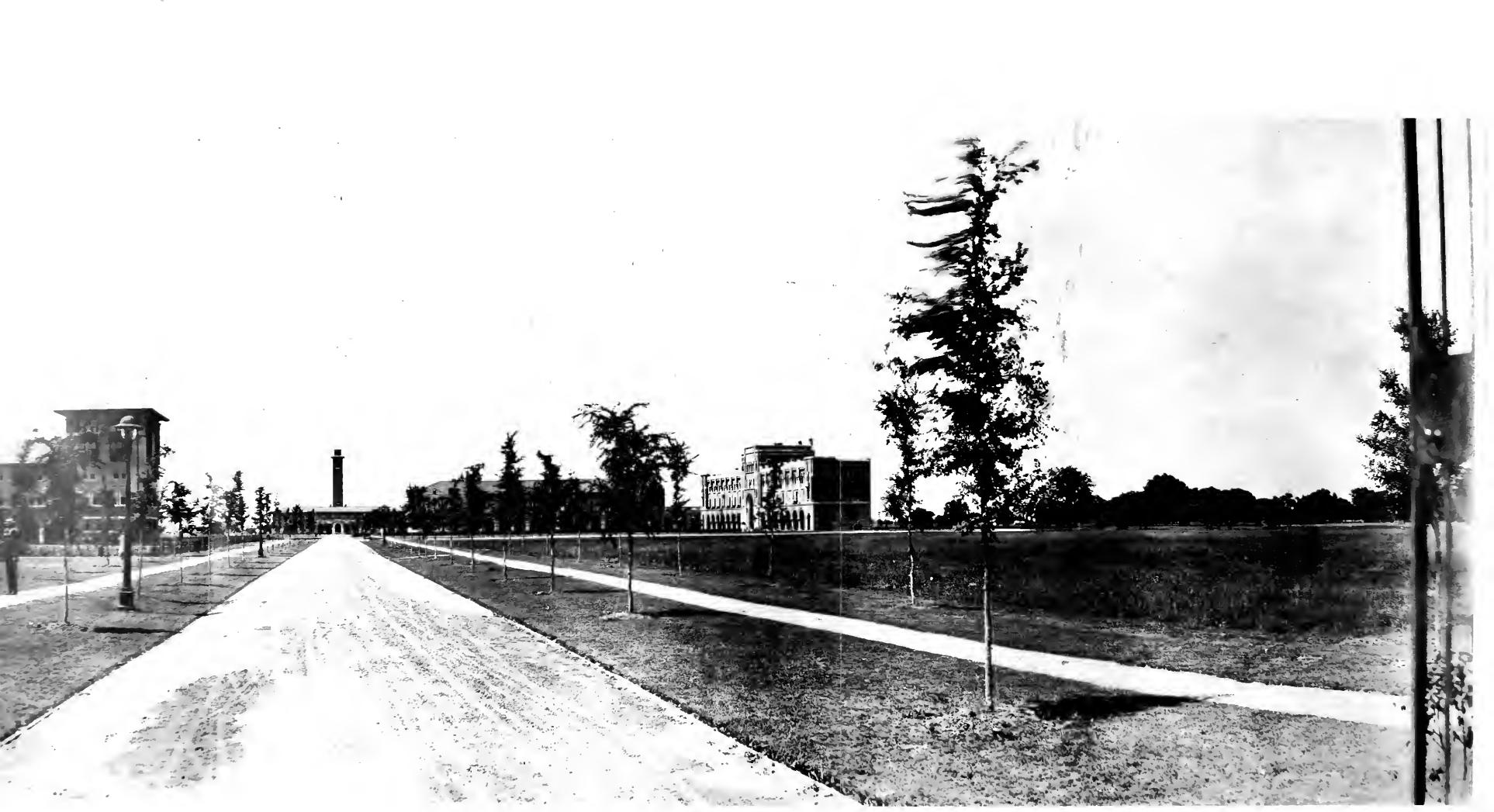


Architecture at Rice
Monograph 29

*The General Plan of the
William M. Rice Institute
and Its Architectural Development*

by Stephen Fox





This issue is dedicated to
Ray Watkin Hoagland,
daughter of William Ward Watkin,
alumna of Rice Institute and
friend of architecture at Rice.

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*Cover—Administration building,
William M. Rice Institute, Houston,
Texas. Cram, Goodhue and Ferguson,
1909-1912. Perspective view of east
(left) and north elevations, 1912.*

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The General Plan of the William M. Rice Institute and Its Architectural Development is an outgrowth of an exhibit held at the Sewall Gallery of Rice University, 19 October to 19 November 1977, organized by Drexel Turner. The exhibit consisted mainly of materials assembled from the collections of the Boston Public Library and the Fondren Library of Rice University. It was supported by contributions from Mr. and Mrs. Nathan Avery; Mrs. Henry W. Hoagland; Morris-Aubry Architects; Lloyd Jones Brewer and Associates, Architects; the McGinty Partnership, Architects; 3/D International, Inc., Architects; Spaw-Glass, Inc., General Contractors; Linbeck Construction Corporation; and Mayan Construction, Inc. Chester A. Boterf, Director of the Sewall Gallery and Associate Professor of Art, directed the installation of the exhibit, assisted by Mimi Webb-Miller. David A. Crane, then Dean of the School of Architecture, and Ann Barr, then Executive Director of the Rice Design Alliance, lent the resources of both organizations fully and enthusiastically in behalf of the exhibit.

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Too easily and too often we tend to take our physical surroundings for granted. Particularly is this the case with an environment which somehow conveys an impression of permanence. The more powerful and persuasive that impression, the less the individual who has been drawn into it and absorbed by it is apt to consider that there was once a time when such an environment did not, in fact, exist. Today in 1980, there is no nobler entrance to a university campus known to me anywhere in the world than that of Rice. To pass through the main gate, to drive or, preferably, to walk the length of the avenue before you, itself now a natural cloister solemnly shadowed by the converging limbs of oak trees, to emerge at last into full sunlight at the verge of the huge lawn, and to pause, stunned, no matter how familiar the sight, by the presence of the administration building, "brilliant, astounding, enduring" as Julian Huxley hailed it, is to be drawn into another world, untroubled by change, wholly set apart, and our instincts tell us that somehow it has always existed. Of course the administration building endures; it has always stood there. Surely too, the long, perfectly proportioned vista, and just as surely the trees that so majestically frame it. But of all this other world, at the turn of the century, nothing whatever was to be seen. Only prairie, flat and barren, stretching away on all sides to the horizon and beyond, and it is with the prairie, albeit in an unwritten sense, that Stephen Fox begins his absorbing and instructive essay on *The General Plan of the William M. Rice Institute and Its Architectural Development*.

If it is challenge enough to plan a completely new university, it is challenge yet more daunting to *envision* it, not conceptually as an abstract body of faculty and students bonded together by academic programs, but aesthetically, as a congeries of buildings, sited purposefully on a campus, a total environment in which the ideals of the intellectual life could be realized most consistently, appropriately, and creatively. Edgar Odell Lovett, first president of the institute, clearly appreciated the crucial importance to the new institution of its physical appearance and character. "We proposed to take architecture seriously in the preparation of all our plans," he explained years later to George R. Brown, "but we were unwilling to do this without taking the chance of making a distinct contribution to the architecture of the country while we were about the business." Calmly, precisely, typically, the single understated sentence discloses the reach of Lovett's vision: the stamp of the William M. Rice Institute was to be impressed as much on the aesthetic as on the intellectual life of America. The buildings, ideally, would have to be of national significance. Understandably, then, the search for architects assumed and retained a compelling priority on Lovett's agenda until on the fourth of August of 1909 he reported to the trustees that it had been satisfactorily concluded. The firm of Cram, Goodhue and Ferguson had been chosen to prepare a plan for the development of the campus as well as architectural studies of the first buildings.

In 1901, eight years earlier, the firm had drawn up a campus plan and designed the initial buildings for Sweet Briar College in Virginia. In 1902 it won a major

competition for a general plan of improvement for the United States Military Academy at West Point. Cram had been appointed consulting architect to Princeton University in 1906, and for it Cram, Goodhue and Ferguson had designed the Class of 1877 Hall. A major academic project was thus nothing new for the firm. Work was begun immediately on the general plan for Rice, or, more accurately, plans, for in accordance with a tradition of holding, as it were, an internal competition, the architects submitted independent proposals to Lovett and the trustees, Cram from Boston and Goodhue from New York. How these plans were received, how and why they were variously altered, and how the final version emerged is a fascinating story, vividly narrated by Fox. Suffice it to say here that the general shape of the new world of the Rice Institute is more that of Goodhue than of Cram.

If it is to Goodhue that we owe the spaciousness of the campus, it is to Cram that we owe the style of the early buildings. Ralph Adams Cram was not merely one of the most distinguished architects of his generation. He was also a student of history and a philosopher of culture, a grave man to whom it appeared with incontestable clarity that in man's striving the world over for the best that lay within him, he had reached the summit of his aspirations during the High Middle Ages of Latin Christendom. Furthermore, this invisible spiritual and ethical apogee had been articulated visibly in a particular style, the Gothic, in so intimate a fashion that architecture and achievement were inseparable. And insofar as Cram understood the university to be the only total environment in which the highest and finest of *humanitas* was to be sought, the Gothic was inevitably the style most appropriate for its buildings. This two-fold idealization, of the university as institution and the Gothic as architecture, would, in fact, nowhere be more gloriously realized by him than in the Graduate College for Princeton which he, Goodhue and Ferguson were designing in 1909, just when they received the commission for Rice.

But the terrain and the climate of Houston posed a brutal obstacle. The Gothic was patently unfit for the prairie and the heat. More significant, for Cram, was the notable absence of any distinctive cultural or architectural tradition. There was, to be sure, the mission style, what he called "the strange and effulgent Renaissance of Mexico"—of which Goodhue eventually would become an adept—but the trustees opposed it. What, then, to do? What should the buildings look like? What should the buildings *say*? How could the gross elements of the material world be brought together and so re-formed as to speak for an invisible and intangible world of intellect and spirit? How, without the Gothic, would they represent a university? The answer to such questions was a mighty act of creative imagination on Cram's part. He would probe elsewhere in the human achievement. He would go beyond and behind the Gothic to an even earlier world, an ancient world of beginnings, in keeping with the new institution, one which antedated that of the Gothic by centuries, back from the cold north to the warm south, from the Ile de France to the Mediterranean, and to the many cultures which had sprung up around its shores. Accordingly,

on one level of perception, the bold new style, unlike the Gothic, is multi-cultural, technically eclectic, containing in it, as Cram acknowledged, elements of "Syrian, Constantinian, Byzantine, Lombard, Dalmatian, French, Italian and Spanish Romanesque with a covert glance at the Moorish art of North Africa." But at a deeper level these individual elements merge into a subtly undivided and indivisible whole, and it is precisely this unity, evoking the essential unity of Mediterranean culture, which ultimately gives to the early buildings their seductive interest and power.

The dilemma of style resolved, the architects had still to contend with the intellectual scope of the institute and its financial resources. The president and the trustees "contemplated an institute of technology" at first, which would then, as Lovett said, be "liberalized in an ever increasing degree until, with fuller means and ampler resources, a university program, with all its complexities, might be entered upon." It was that glimpse into the future which so galvanized Cram and Goodhue, and in a very real sense it was to a far distant university rather than to the institute then that they gave visual form in the buildings called for in the general plan. So vast, in fact, was the complex that its components were to sustain the full sweep of a great central mall nearly three times the length of the present academic court.

But the Rice bequest dictated a more austere beginning. Although valued then at almost ten million dollars, it had yet to provide the entire income for the operation of the institute once funds for the acquisition and development of the campus were deducted from its sum. How, then, were the architects to make the first buildings sufficiently compelling to uphold Lovett's and their own more elaborate aspirations for the ultimate development of the institute? In this shared imperative to achieve, in Cram's words, "magnificence at moderate cost," the architects' resourcefulness was nowhere put to greater test. Lovett would later wryly admit that "team work was not always easy with trustees sitting tight on the money bags and an architect's imagination soaring to the stars," but Cram's imagination triumphed over severe financial exigencies, above all in the administration building. Raised up high on the prairie, its monumental walls punctuated at the center by the great arch, enlivened "with all the colour we could command...everything we could think of to give richness, variety and a certain splendor of effect," it was Cram's supreme benefaction, for it soon became an icon for Rice so irresistible in its attraction that nothing, it is safe to say, can ever replace it.

The sources for the individual elements which figure in the first buildings are described by Fox in copious and arresting detail. Subsequently he turns to their construction, and as the narrative proceeds the familiar structures gradually take shape, the administration building, the mechanical laboratory, the first residential halls set apart from the great academic court and secluded in their own quadrangle, the physics building, and later the chemistry laboratory and the tiny gem of Cohen House, all resting in their several ways on the one, superintending foundation of Cram's Medierra-

nean style. Towards the close our attention is also skillfully directed away from the institute, for not the least fascinating aspect of Fox's history is the influence which Cram exerted on a small group of Houstonians, too little celebrated, who were inspired by the loftiest civic ideals to plan and develop the area around Rice into a place of beauty and distinction equal to that of the campus.

These early buildings were greeted initially with enthusiasm. In the 1920s and 1930s, however, as architectural tastes inclined more and more to modernism, approbation turned to opprobrium, occasionally even to undisguised hostility. Indeed, as late as 1961, the Mediterranean style was characterized as "a shotgun marriage between Venice and Valladolid." But by then the scathing verdict was wide of the mark. Architects and historians of art had already been won to a new appreciation of nineteenth- and twentieth-century eclecticism, and in this atmosphere, as Fox notes, Cram's achievement was re-evaluated with understanding and sympathy. The architect himself, changes in taste notwithstanding, retained to the last his affection for the buildings. It endured, just as they have. And in a city so dependent on an all too recent and ephemeral past, they strike us as even more unexpected and permanent today than they did Julian Huxley nearly eighty years ago.

I have longed for such a book since December of 1965 when I first succumbed to the spell of the Rice campus and Cram's buildings. They hold me still in thrall; they always will, but I can see them and understand them now as never before. Stephen Fox, a graduate of the class of 1973, has written for all graduates and friends of Rice an indispensable guide, beautifully produced and extensively illustrated. No one of them should be without it.

Charles Garside, Jr.
Professor of History
Rice University



In a city reputed for its indifference to planned development, the campus of William Marsh Rice University presents an anomalous aspect. Its ornately detailed buildings and coherently landscaped open spaces seem to express in concrete form an inversion of the values for which Houston is best known. The prospect of the university's administration building, Lovett Hall, suddenly looming into view across an open green as one emerges from the tunnel of live oaks enclosing the principal approach drive [1], is still likely to induce a sensation of incredulity and awe as impressive as when the building first stood complete in the fall of 1912.

Across from the car-line, by a ramshackle farmhouse, we were confronted by an extraordinary spectacle, as of palaces in a fairy story. The Administration Building was before us, looking exactly as if it had arisen directly out of the earth. ...The high rounded windows, the lavishness of color and decoration, conspired with the simple and modern form to produce an effect of something entirely original. Here it stood, brilliant, astounding, enduring; rising out of the barren brown prairie which extended, unbroken save for a belt of trees, to the horizon and far beyond...!

The vision which transfixed the chronicler, Julian Huxley, and the other academic notables who had come to Houston in 1912 from all over the world to inaugurate the William M. Rice Institute, was that of a university arising somewhere in between the "barren brown prairie" and the collective ambitions of a number of men: the nineteenth century mercantile millionaire William Marsh Rice; his institutional heirs (especially the attorney James Addison Baker and the civil engineer William Marsh Rice, Jr.); Edgar Odell Lovett, mathematician, astronomer and president of the Rice Institute; and Ralph Adams Cram, the Boston architect and essayist who gave physical form to the idea of this new university.

WILLIAM Marsh Rice had come to Texas from Massachusetts in 1838. He settled in the two-year-old village of Houston in 1839 and established himself as a commission merchant. Diversified investments—especially in cotton processing, real estate and railroads—made Rice one of the richest men in Texas by the outbreak of the Civil War.² At the end of the war he moved to New York, but his business interests remained concentrated in Houston. Although twice married, Rice was childless. By the late 1870s, he seems to have conceived the notion of endowing an institution for the care and education of indigent children, and was especially influenced by both Girard College in Philadelphia and Cooper Union for the Advancement of Science and Art in New York. In 1882 he drew up a will endowing a William M. Rice Orphans' Institute to be located on his suburban estate near Dunellen, New Jersey.

During the following decade Rice's conception of the institution broadened. Twice he was approached by Houston business associates seeking contributions to the local public school system. Rice declined both requests, but divulged to each of the solicitors his intention of endowing a William Marsh Rice Institute of Letters, Science and Art modeled after Cooper Union. In

1891 Rice was persuaded to establish this institute and in May of that year the William M. Rice Institute for the Advancement of Literature, Science and Art was incorporated with Rice, Cesar Lombardi and Emanuel Raphael (the two unsuccessful solicitors), Frederick A. Rice (Rice's brother and business associate), James A. Baker (his attorney), and Alfred S. Richardson and James E. McAshan (two other Houston businessmen) as trustees.

The next year, Rice and his wife, Elizabeth Baldwin Brown Rice, conveyed several valuable properties to the institute as an endowment. These included a tract of seven acres located on Louisiana Street in the Fourth Ward of Houston, which was designated as the site of the foundation. Rice, however, declined to actually implement the institute during his lifetime. Beyond a general statement of purpose included in the charter, he attended only to the management of its endowment. When Elizabeth Rice died in 1896, she left a will which threatened the institute's future, as it variously disposed of what, under Texas law, were her community property holdings. Rice challenged the validity of the will on the grounds that Elizabeth Rice had been a resident of New York, not Texas. When it was nonetheless accepted for probate, he lodged an appeal. By the time the appeal was due to be heard, in the fall of 1900, Rice had become the object of a rather inept conspiracy to obtain his fortune fabricated by Albert T. Patrick, an attorney engaged in the litigation over Elizabeth Rice's will. On 23 September 1900, Rice's valet, Charles Jones, acting on Patrick's instructions, chloroformed the sleeping eighty-nine-year-old millionaire in his New York apartment.³

In the sensational events which followed, Patrick was tried, found guilty of murder and sentenced to death, a punishment later commuted to life imprisonment.⁴ The affairs of Rice's estate were not settled until 1904 when the William M. Rice Institute, as residuary legatee, was left with an endowment valued at \$4,631,259.08. Economic conditions favored a dramatic expansion of the endowment. By the time the institute was opened in 1912, the endowment had increased to nearly \$10 million, forming what was then the seventh largest university endowment in the United States.⁵ The trustees embarked on a search for an individual who could give definite shape to the educational project outlined in Rice's charter of 1891. William M. Rice, Jr., (one of Frederick Rice's sons, who had been named to a position on the board of trustees by his uncle in 1899) was a graduate of Princeton University. For recommendations he turned to a former classmate who had since become president of the university, Woodrow Wilson. It was Wilson's candidate, Edgar Odell Lovett, a professor of astronomy at Princeton, whom the trustees ultimately invited to become president of the Rice Institute in November 1907.

LOVETT accepted the position and moved from Princeton to Houston with his family in the spring of 1908. Prior to establishing a curriculum and assembling a faculty, Lovett spent one year—from the summer of 1908 until the spring of 1909—touring universities and technical schools in the United States, Europe

AN INSTITUTE FOR LETTERS,
SCIENCE AND ART



William Marsh Rice (1816-1900)

and Japan. His consequent program for the Rice Institute was developed with an emphasis on mathematics and science, supported by university level studies in the humanities. The new president, in one of the frequent speeches of explanation he was called upon to deliver in Houston, summarized the evolution of this program: "The trustees' first plans contemplated an institute of technology, which has broadened into a school of science, pure and applied, under an educational policy sufficiently flexible to admit of expansion to university dimensions." In the same address, Lovett likened this conception to those of institutions he had surveyed in Europe:

I believe that the new institution is to play in Houston a role similar to that of the newer universities which have risen recently in the manufacturing centers of northern England...These modern universities aim at uniting the study of pure science with its applications to industry and commerce; they seek to differentiate themselves from schools of technology by giving due and sufficient place to the humanities or liberal arts; and finally to reach men and women from every walk of life, they place themselves in line with the educational ladder, whose lower rungs are in the primary and secondary schools of the country.⁶

Rice's charter specified that admission to the institute be free of charge; thus the program envisioned a student body selected on individual merit, which would participate in a curriculum grounded in mathematics, physics, chemistry and biology but, according to Lovett, "liberalized in an ever increasing degree until, with fuller means and ampler resources, a university program, with all its complexities, might be entered upon."⁷

The founder had designated Houston as the site of the institute. In 1909 Houston, with a population of about seventy-five thousand, was the exemplary New South city. Its economy was based on transportation industries and commodities processing. As a result of local persistence, the U.S. Army Corps of Engineers was digging an eighteen foot deep channel through Galveston Bay and up Buffalo Bayou to transform Houston into an inland seaport. Since the discovery of oil near Beaumont in 1901, the city had managed to make itself the center of the Gulf Coast's evolving petroleum industry. Evidence of Houston's "progressiveness" was manifest in its emerging skyline. That year the offices of the Rice Institute were moved into the newest, tallest building in town, the eleven-story Scanlan Building. Designed by D.H. Burnham and Company of Chicago, the Scanlan Building bespoke the affinity of progressive-minded locals for importing well-known architects to undertake important commissions. While planning for the Rice Institute was underway, the St. Louis architects Mauran, Russell and Crowell had eight projects under construction in or near Houston. Jarvis Hunt of Chicago was designing a downtown office building and a new union terminal was being planned by Warren and Wetmore of New York.

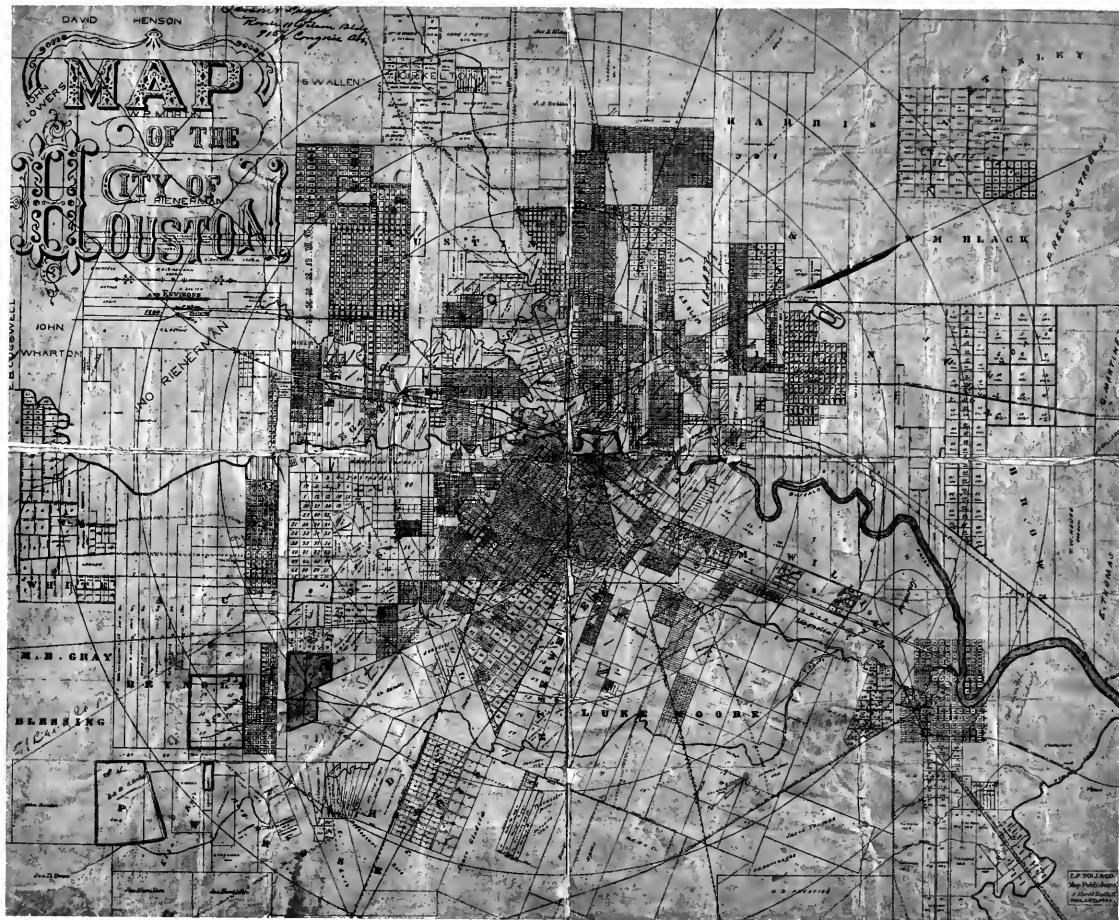
This attention to architecture—the public aspect of progress—was shared by Edgar Odell Lovett and it was integral to his conception of the new university. As Lovett related in a much later memorandum, "...we

proposed to take architecture seriously in the preparation of all our plans, but we were unwilling to do this without taking the chance of making a distinct contribution to the architecture of the country while we were about the business."⁸ That the new president had spent most of his academic life in architecturally distinctive environs may partially account for this determination. Between 1892 and 1895 Lovett pursued graduate studies at the University of Virginia, from which he received master's and doctoral degrees. After a year of post-graduate work at the University of Leipzig, he returned to the United States, teaching briefly at Johns Hopkins University, the University of Virginia and the University of Chicago before accepting an appointment as instructor in mathematics from Princeton University in 1897. The University of Virginia, designed by Thomas Jefferson and built between 1817 and 1826, was one of the oldest examples in the United States of a university campus planned as an architectural unit. The new campus of the University of Chicago, laid out between 1891 and 1893 by Henry Ives Cobb, had figured as part of the ambitious program undertaken by Chicago's president, William Rainey Harper, to transform a small Midwestern college into a major university. Lovett's arrival at Princeton had coincided with the completion of Blair Hall, the dormitory by Cope and Stewardson which was to inspire the university's subsequent commitment to architectural coordination.

LOVETT'S first action regarding the physical plan of the Rice Institute was the acquisition of a site for the campus. When the future president first came to Houston in 1907 to be interviewed by the trustees, he was shown both the Rice Institute tract on Louisiana Street and also a portion of the Rice Ranch in southwestern Harris County. Lovett rejected both of these sites; the Louisiana Street property was too small, the Rice Ranch too far from Houston.⁹ Lovett settled on a third location, situated one and one-half miles south of the city on Main Street Road, a narrow dirt extension of Houston's Main Street. He persuaded the board to assemble a campus there [2]¹⁰ and six tracts, totaling two hundred and seventy-seven acres, were acquired between October 1908 and May 1909 at an approximate cost of \$180,000.¹¹ Two tracts within this allotment could not be purchased immediately. One was a strip along what is now University Boulevard. The other and more crucial piece, the Weber tract, was located along Main Street Road near the northeast corner of the site. Altogether the property occupied an expanse of prairie midway between the southern city limit and Brays Bayou. Harris Gully, a tributary of Brays Bayou, cut through the southern part of the site. Along its banks and at the extreme northeastern tip of the site grew the only trees on the property. Several wood frame cottages, surrounded by small gardens, sat on the future campus, facing Main Street Road.

It was not until after his study tour of American and foreign technical schools and universities that Lovett addressed himself to the issues of planning and architecture. In the spring of 1909, the president issued a circular letter notifying architects of his interest in obtaining proposals for the institute's campus develop-

2 Map of the City of Houston and Environs. Patrick Whitty, 1896.





Edgar Odell Lovett (1871-1957)



Ralph Adams Cram (1863-1942)



Bertram Grosvenor Goodhue (1869-1924)

ment.¹² To aid in the planning of the institute facilities, he appointed an advisory committee of four scientists to review and evaluate both programmatic and architectural briefs.¹³ President Lovett spent the summer of 1909 interviewing architects. Among those considered were Carrere and Hastings and Benjamin Wistar Morris, both of New York. Morris—who designed 1879 Hall at Princeton, donated by William M. Rice, Jr.'s class—had been approached by Rice in 1906 to determine his possible interest in the commission. In June 1909, Morris prevailed upon Woodrow Wilson to write to Lovett on his behalf. From one of James A. Baker's former legal associates, the railroad executive Robert S. Lovett, came another letter of recommendation, urging that Warren and Wetmore be retained to plan the new campus. In July, the president reported to the trustees that he had reduced the number of candidates to three or four¹⁴ and in early August, he notified them that the commission for a campus development plan and schematic architectural studies had been awarded to Cram, Goodhue and Ferguson of Boston.¹⁵

In light of Cram, Goodhue and Ferguson's connection with Princeton, Lovett's choice was not surprising. Since 1906 Ralph Adams Cram had guided Princeton's campus development as consulting architect to the university. Cram, Goodhue and Ferguson had been architects for 1877 Hall and at the time of their selection for the Rice Institute project were engaged in designing the Graduate College.¹⁶ Princeton's policy of building in a consistently Gothic manner was fully consonant with Cram's own principles, for he had attained popular celebrity by advocating a return to Christian cultural values and, concomitantly, to medieval architectural forms. Cram's partner, Bertram Grosvenor Goodhue, was recognized in architectural circles as an outstanding draftsman, ornamentalist and typographical designer.

Cram and Goodhue's partnership was in fact the result of a Texas project. In 1891 Goodhue had submitted a competitive design for the Anglican cathedral of St.

Matthew in Dallas [4] and won. On the basis of this project, Goodhue joined the firm of Cram and Wentworth, established four years earlier in Boston, of which he shortly became a partner. Unfortunately, the depression of 1893 intervened to forestall realization of Goodhue's design. Following the death of Charles F. Wentworth in 1897, Cram and Goodhue promoted Frank W. Ferguson to partnership to handle the office's business affairs and reorganized the firm as Cram, Goodhue and Ferguson.¹⁷

Cram, Goodhue and Ferguson's most important commissions had involved the design of large ecclesiastical and academic projects. Their church work included All Saints Chapel at the University of the South in Sewanee, Tennessee, and a series of Anglican cathedrals (Halifax, Nova Scotia; Havana, Cuba; and Detroit) and parish churches (Emmanuel, Cleveland; Calvary, Pittsburgh; and St. Thomas, New York). Either shortly before or after receiving the Rice commission, the firm prepared a design—never built—for St. Helena's Church in Boerne, Texas.

In addition to Cram's work for Princeton, Cram, Goodhue and Ferguson had in 1901 prepared a group plan and designed the initial buildings for Sweet Briar College in Sweet Briar, Virginia. The next year they won a major competition for a general plan of improvements to the United States Military Academy at West Point, New York. This resulted in the opening of an office in New York in 1903, under the direction of Goodhue. Thereafter, the work of the Boston and New York offices tended to assume the character of the principal partner in charge.¹⁸

Ralph Adams Cram was regarded as one of the foremost intellectuals of his day. Cram not only possessed decided opinions on modern society and its institutions, but pursued a separate literary career to publicize these opinions. For Cram, the medieval cultural sphere represented a superior social ideal, in contrast to what he saw as the meretriciousness and destructiveness of contemporary civilization. Bertram

3 *Church of the Incarnation, Dallas, Texas (project). Bertram Grosvenor Goodhue, c.1891. Perspective detail.*
4 *St. Matthew's Cathedral, Dallas, Texas (project). Bertram Grosvenor Goodhue, 1891. Perspective view.*

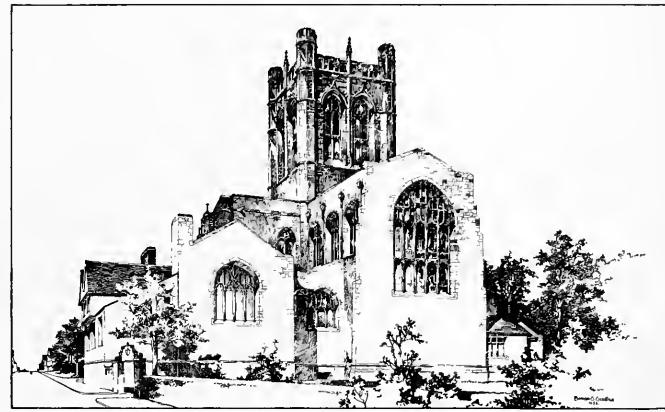


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Goodhue, on the other hand, was non-doctrinaire. If Cram was the thinker, then Goodhue was always presented as the artist. In fact, the esteem with which he was held by the architectural profession derived as much from his sketches and drawings as from his executed buildings. On principle, Cram tended to confine his architectural work to the medieval canon, primarily French and English Gothic. Goodhue ranged further afield. At the turn of the century he designed a number of buildings in a severe neo-Grec style. The best known of these was the Gillespie house in Montecito, California of 1903, for which Goodhue also provided elaborate Persian-style gardens, inspired by a trip he and James Waldron Gillespie had made to Iran.

Goodhue's involvement in the preparation of Sylvester Baxter's ten volume reference work, *Spanish-Colonial Architecture in Mexico* (1902) had sparked a continuing interest in the colonial architecture of Spanish America, an interest expressed in his design of two Anglican churches in Cuba, and a hotel at Colon, Panama. In another unbuilt Texas project, the Church of the Incarnation in Dallas [3], Italian elements were used in a vernacular fashion redolent of the California mission style. The culmination of Goodhue's fascination with Spanish colonial themes came in his work as architect for the Panama-California Exposition of 1915 held in San Diego, California. There he launched the Spanish colonial revival style which was to enjoy tremendous popularity in the 1920s. The exposition buildings were the last of Goodhue's architecture to be credited to Cram, Goodhue and Ferguson, for he withdrew from the partnership at the end of 1913 and practiced independently until his death in 1924.

Cram was by no means antipathetic to his partner's romantic tendencies. But characteristically, his romantic inclinations were cast in a more serious and theoretical form. This certainly was to prove true at the Rice Institute. Education constituted an important element in Cram's social critique, and it is intriguing to note his view of the kind of institution he had been called upon to design: "the useful but wholly special

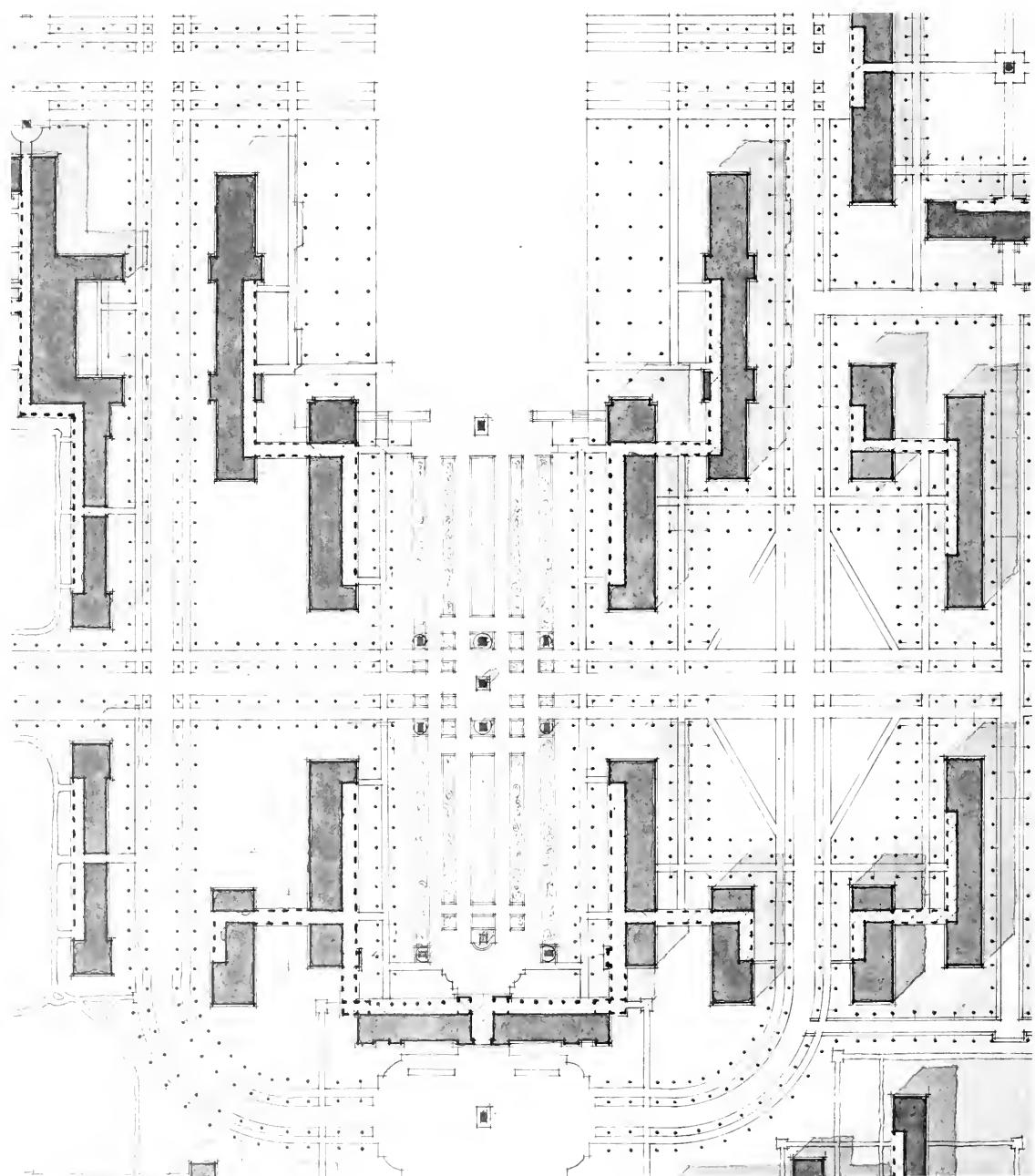


4

'Polytechnic Institute.'" "That it is a distinct necessity is entirely true," Cram had observed in an article written in 1900, "but it by no means takes the place of the true university, and by just so far as the latter takes on the qualities of the technical school, losing in the process something of its university aspect, it destroys the balance of education, leaving it narrow, material and inadequate."¹⁹

Inasmuch as Edgar Odell Lovett aspired to transform the Rice Institute—which initially was to be weighted toward the technical—into a university, Cram could interpret his own contribution as symbolically prefiguring this metamorphosis. For the Boston architect regarded art as so potent and palpable a factor in human affairs that the work of Cram, Goodhue and Ferguson at the Rice Institute must be viewed with this symbolizing function in mind. Yet of equal interest was the manner in which Cram pursued these ends, for his idealism was complemented by both an easy pragmatism and thorough professionalism.

Over the next three years the dialogue between president and architect was to require the services of both idealism and pragmatism. But even as differing opinions were frankly—at times even heatedly—expressed, the mutual conviction seemed to prevail that, as Lovett later would phrase it, "a distinct contribution" was architecturally underway.



FOllowing Lovett's report to the board of his selection of Cram, Goodhue and Ferguson, the architects were instructed to prepare a general plan illustrating "the entire group of buildings *en bloc*, showing the four buildings which are considered necessary to be erected at first."²⁰ These four buildings were to consist of an administration building, a laboratory, a power plant and a dormitory. Lovett traveled to Boston in late August to confer with Cram, and the program discussed was summarized in a memorandum²¹ to assist Goodhue in the New York office.

As detailed in the memorandum, the administration building was to contain a trustees' room, a faculty hall with seating for one hundred fifty people in collegiate choir arrangement, a president's suite "desired between trustees' and faculty rooms, if possible" and various administrative offices. Lovett wanted a lecture hall, a library, six sets of classrooms, conference rooms and faculty offices to be located temporarily in the administration building. Since the first laboratory would accommodate physics, biology and chemistry, a three-story building was proposed, with each floor devoted to a different discipline. The memorandum specified that the power plant be combined with a mechanical laboratory, located "at the further end of the laboratory quadrangle in connection with [the] ultimate group of laboratories." The first dormitory would constitute the nucleus of a system of residential quadrangles for men, in which each unit was to house one hundred to one hundred twenty-five occupants. Space for an estimated two hundred fifty to three hundred students would be required initially. They would be served by one large refectory and kitchen, although each quadrangle would eventually be provided with its own common rooms. The architects suggested that "it is possible, also, that some of the quadrangles may be furnished with their own private chapels, as the Foundation is so aggressively non-sectarian that there can be no provision for a great college chapel, at least at present."²² A temporary gymnasium was required and houses for the president and ten to twelve faculty members were "to be built at once." The architects proposed roofed, open "cloisters" to connect the academic and laboratory groups; these could be employed additionally in the dormitories. But surprisingly, in view of the hot, wet climate, it was noted that these cloisters "need not be connected up one with the others."

The general plan was to indicate the location of such future facilities as a large library, a "great" auditorium, four additional laboratories, ten times the academic space initially required, quadrangles for law, medicine and fine arts, a graduate college, a gymnasium and athletic fields, eighty faculty residences, dormitories for fifteen hundred male students and fifteen to twenty fraternity houses. The memorandum concluded with a three-line sentence noting that the plan should include a single dormitory to house two hundred female students, "somewhat distant from the residential section of the men." In the brief cover letter accompanying the copy of the memorandum sent to Lovett, the architects averred: "We have seldom been more enthusiastic over any project than over this of the Rice Institute. West Point alone rivals it in interest."²³

It was the custom of Cram, Goodhue and Ferguson, when in the early stages of a design, to have the two offices submit alternate proposals for the client's study—"an architectural competition among ourselves for the benefit of the client," as one member of the firm described it.²⁴ This enabled the client either to select a specific proposal or to suggest a conflation of the most meritorious items of the several submissions, which the architects would then work out. Within two weeks of Lovett's receipt of the memorandum, the architects dispatched their first sketch studies of campus layouts. The Boston office sent three alternate schemes labeled A, B and C [7, 8, 9], all in ink and colored pencil on tracing paper. Goodhue, from New York, mailed a single scheme delineated in colored pencil on tracing paper [10]. Each depicted the triangular-shaped site with Main Street Road bounding the lower right-hand edge. Cut-out sections along the diagonal borders marked the two tracts which the institute had been unable to acquire immediately.

Plan A [7], according to the firm's anonymous correspondent, was an elaboration of the scheme which Cram had first proposed in conversation with Lovett.²⁵ A major entrance, perpendicular to Main Street Road, led to a rotary where the graduate college and professional schools were located. A mall, parallel to the campus's northern boundary, proceeded westward from the rotary and terminated at the administration building. North of the mall was the science group, and dormitories were located to the south. Beyond the dormitories lay the gymnasium, stadium and athletic fields about which were clustered a virtual subdivision of faculty houses. North of those and west of the administration and laboratory buildings lay the "University Park" with amphitheater and "baths" picturesquely situated on the bank of an artificial lake. Radial and diagonal thoroughfares distributed traffic through the campus. Symmetry of parts was exploited to achieve a composition of great diversity—too much, in fact, in the opinion of the architects who pronounced it "diffuse." They further considered entrance through the graduate section dubious and felt that the administration building needed to be closer to Main Street Road.

Plan B [8], according to the firm's correspondent, was therefore devised to correct these shortcomings. The entrance from Main Street Road penetrated between ranks of buildings framing a central quadrangle. The administration building controlled a vista—set parallel to Main Street Road—which opened out from the central quadrangle into the broader "campus," ending at an auditorium. The residential courts, aligned along diagonal thoroughfares, radiated, fan-like, from the auditorium. Beyond them, following the line of Harris Gully, lay the faculty residence quarter and the athletic fields. The park and lake remained in the northwest quadrant of the site. As in plan A, a Baroque street diagram imbued the site with a degree of circumstantial appeal lacking in its natural condition. Pronouncing plan B "distinctly an improvement" over its predecessor, the architects' correspondent nonetheless noted that "we still lack that opening out into the parks and gardens which seems desirable."

"A COMPETITION AMONG OURSELVES"



6

The concept of opening out by degrees from a densely-built to a more open environment was apparent in the spatial progression from science quadrangle to administration quadrangle to campus. Yet the failure to integrate the park into this progression was sufficient cause to justify a third scheme. Cram had earlier used a similar spatial progression to structure the planning of the Princeton campus [6]. His general plan of 1906 for Princeton envisioned axial progression from Nassau Hall, through the *propylaea* formed by Whig and Clio Halls, past newer layers of classroom and dormitory construction to a wooded preserve. A minor axis, commencing near the initially proposed site of the Graduate College, also focused on this sylvan objective.²⁶ In this context, the complex articulation of plan B's orthogonals and diagonals appears as an elaboration of the sight lines developed at Princeton.

Plan C [9], the architects informed Lovett, "seemed to us so eminently satisfactory a solution...so far as the general disposition of parts was concerned, that we immediately began a more careful drawing at double the scale of the sketches."²⁷ The sketch submitted coupled a mall parallel to the north property line (as in plan A) with an opening out from the administration building quadrangle to the campus (as in plan B). The various groups (sciences and graduate studies north of the mall, dormitories and athletic fields to the south) were more coherently related, placed as they were along the major axis and two cross-axes penetrating the campus from Main Street Road. The central mall gave way directly to a park, with the axis of vision terminating in a "Greek theater" reflected in a long basin at the far west end of the site. Diagonals were retained, but they functioned only in an accessory capacity, not as devices to order the siting of buildings.²⁸ The architects commended this scheme for its simplification of earlier arrangements, its opening out to the park and its reservation of the wooded northeast section as a "park and garden."²⁹ They promised the president that a more thorough development of this proposal would be worked out and sent to him, as well as Goodhue's project for a general plan.

Goodhue's scheme [10] was mailed to Lovett a week after the schemes of the Boston office, accompanied by a letter of explanation from Boston. The firm's correspondent enthusiastically endorsed the New York office's solution: "There is something very simple and direct about this plan and, if it commends itself to you at all, we should be very glad to work it out."³⁰ Like the Boston office's plan C, Goodhue's proposal envisioned a central mall, opening up in successive stages in a westerly direction. However, the lozenge-shaped ring road bounding the central campus enclosed an area much larger than in any of Cram's schemes. Moreover, the administration building was aligned on a cross-axis intersecting the east-west mall to form a great campus square. Dominating this square was an auditorium, clearly intended as the group's focal building. It terminated both the westward vista from the campus quadrangle and the eastward vista from the amphitheater at the far end of the site. South of the campus square, the cross-axis penetrated a dormitory quadrangle, closed on one side by a gymnasium and

stadium, before terminating at the Main Street Road major entrance. Goodhue developed a Persian garden for the area between the auditorium and amphitheater. The wooded northeast end of the property was articulated with a winding drive (very different in character from the orthogonal arrangement of the rest of the scheme), along which the president's house and a faculty residence quarter were located. The Boston office's correspondent noted that Goodhue did not conform very closely to Lovett's programmatic stipulations but added that the scheme would be reworked so that individual components might "fall more into harmony with your requirements."³¹

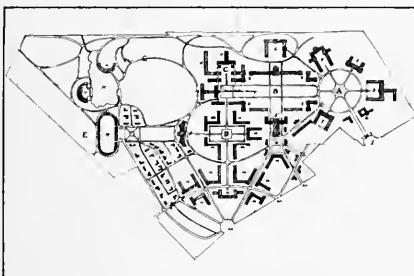
In late September, the architects notified President Lovett that presentation plans depicting the Boston and New York offices' alternatives were nearly completed and would be mailed to him the first week in October. The firm's correspondent also informed the president that design sketches for the individual buildings were underway: "This is interesting and enormously difficult, but we shall be able to let you have, before November 1, quite a lot of varied studies showing what, at best, can only be tentative suggestions as to the course we hope to follow."³² On 5 October, two alternative presentation plans—elaborate water color washes on stiff board prepared by one of Cram's young draftsmen, William Ward Watkin—were dispatched to Lovett [11, 12]. The Boston scheme [11] remained faithful to Cram's plan C. The "Faculty Group" (residential quarter) and the "Athletic Group" showed greater development; fraternity houses and a collegiate chapel were also included in the proposal. Goodhue's scheme [11] had been altered to accommodate the institute's programmatic requirements. An administration building was located on the south boundary of the great campus square, closing the vista from Main Street Road. At the eastern extreme of the long quadrangle, a collegiate chapel axially confronted the monumental auditorium. The women's dormitory had been pulled southward into the residential group. The Persian gardens were retained and the president's house and graduate college transferred to their periphery.

A comparison of the two plans readily indicates their similarity. Both made use of a long east-west axis crossed by a shorter north-south axis about which most of the buildings gravitated. Buildings were set in symmetrical groupings and arranged according to use (dormitory and classroom) and discipline (humanities, science and graduate studies). A ring road defined the inner campus. In both plans the residual space created between the campus and the irregularly aligned boundaries of the site was treated in a more circumstantial fashion. The wooded northeast quadrant was designated as a faculty residential quarter. The northwest quadrant was to serve as a park and the southwest quadrant, which lay alongside the tracks of the city's belt railroad system, as an athletic complex.

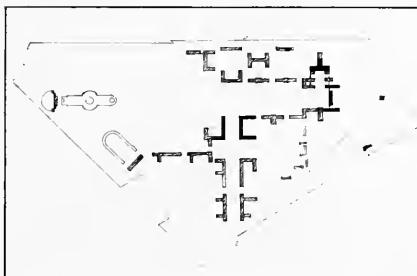
The two major factors differentiating the Boston and New York schemes were scale and connection. Goodhue's campus was nearly one-third longer and twice as wide as Cram's. His buildings were set much farther apart and would have controlled the perception

7 Preliminary plan A. William M. Rice Institute. Cram, Goodhue and Ferguson (Boston office), 3 September 1909.
8 Preliminary plan B. Boston office, 3 September 1909.

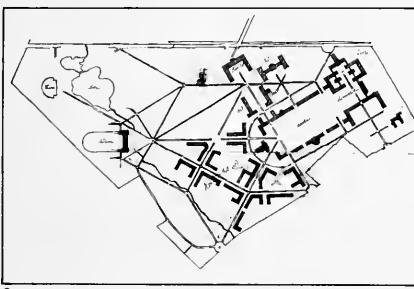
9 Preliminary plan C. Boston office, 3 September 1909.
10 Preliminary plan. New York office, 9 September 1909.



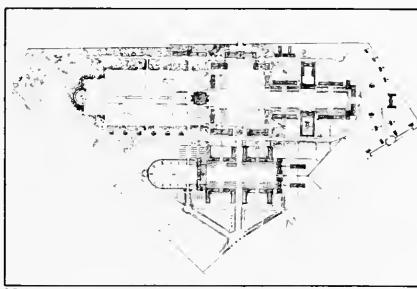
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10

FOUR INITIAL PLANS

of building-defined open space in a looser manner than would Cram's denser groupings. In fact, Goodhue massed groves of trees to define the central square, treating the buildings as regular, but incidental, occurrences. Whereas the Goodhue scheme envisioned an orthogonal network of roads and walks, the Cram plan maintained the framework of intersecting diagonals for distributing circulation throughout the site.³³

Lovett brought these plans before the board of trustees on 13 October 1909, and various revisions were suggested which the president transmitted to the architects.³⁴ In mid-November preliminary sketches of the administration building and the dormitories were received from Boston. At the end of November Cram sent a breezy note to advise Lovett that he and Goodhue would embark from New York on the 27th of that month for a fifty-five hour train ride "which will land us in Houston, on Tuesday, the 30th...I trust...we will be able to return from Texas with this most fascinating job in our pockets."³⁵

Two brief summaries in the board of trustees' minutes are the only direct information concerning the architects' presentations. On 30 November the trustees received explanations by Cram and Goodhue of their proposals along with estimates of the cost of the first buildings to be constructed, although these figures were not recorded in the minutes.³⁶ The trustees directed the architects to revise their proposals to reduce costs, and the next day, at a second special meeting, the architects reappeared before the board, having consulted with the president on proposed

modifications. According to the revised estimates the first five buildings to be constructed would cost \$880,000: \$180,000 for the main building; \$175,000 each for the physics and chemistry laboratories; \$250,000 for the dormitory and \$100,000 for the power plant.³⁷ The minutes report that the board "concluded to adopt the plans," (without displaying any evident preference) and authorized the architects to begin design work. A fee was agreed upon and the trustees were to have a topographical map prepared. A story appearing in the 5 December issue of the *Houston Daily Post* reported that the architects, in addition to meeting with the trustees, took the opportunity to inspect for the first time the site for which their proposals had been made.³⁸

By early December the architects were working on revisions to the general plan in accordance with suggestions received in Houston. William Ward Watkin's drawing of the amended general plan was sent to Lovett for his consideration on 11 December 1909, asking "approval in principle" of the layout, "in order that you may begin actual work of construction early in the year."³⁹ Frank W. Ferguson, Cram, Goodhue and Ferguson's expeditious principal, arrived for a week's stay on 30 December to inspect local material supplies, obtain soil samples and drainage reports for the tract and meet with Houston contractors and architects to determine "local practices, both in regard to foundations, and all parts of the superstructure."⁴⁰ Wilmer Waldo, a Houston civil engineer educated at Princeton, had been retained by President Lovett to report on the condition of the institute site, so that the architects

could proceed in formulating their plans.⁴¹

IMMEDIATELY after Ferguson's arrival in Houston Lovett departed for Boston to inspect the latest refinements of the general plan scheme. These were documented in a colored-pencil-on-tracing-paper drawing [13] corresponding to a description contained in a telegram from Lovett to the architects.⁴² Although illustrating only the central campus, the sketch indicates the magnitude of the changes made in the Boston and New York plans. The main entrance to the campus was shown as a driveway, parallel to the northern boundary of the site, leading in from Main Street Road at the extreme northeastern juncture with the "Hermann triangle," an abutting tract of land. Although the disposition of the buildings remained diagrammatically closer to the Boston than to the New York proposal, the scale was Goodhue's, for the components were grouped in a much broader fashion.

Terminating the entrance drive was the administration building which had gained transverse wings. As in Goodhue's plan, the administration building was flanked by perpendicular ranges of buildings continuing westwardly along the central axis. A perimeter ring road separated this inner layer of structures from two quadrangle groups to the north housing scientific and graduate studies. The northern range of campus buildings was also designated for scientific studies, while the southern range showed one unmarked building and a fine arts group arranged about a central court. Below the southern flank of the ring road, a building (either a chapel or an auditorium) terminated the cross-axis leading from the science quadrangle to the south. Beyond the structures along this cross-axis ("Fine Arts" and "Physics/Geodesy") the campus widened to what appeared to be the central square of Goodhue's plan. Positioned in the northeast corner of the site were a faculty residence section and an infirmary. The faculty quarter was aligned along a diagonal which apparently converged with the main drive near the front entrance. Two diagonals radiated from a rotary in front of the administration building, the uppermost leading to the faculty residence section, the lower one leading out to Main Street Road past the intrusive Weber tract.

Lovett suggested several changes to this scheme; principally that the administration building be advanced one hundred fifty feet to the east, nearer to Main Street Road. As he explained in a letter of 13 January 1910, "my desire in having the Administration Building brought as far as possible towards the center is to reduce to a small degree the length of the approach, and to free the building as much as possible, of the disadvantages of being cut off from the road by the corner of the Weber tract."⁴³ Lovett's proposals were quickly countered by the architects, who prepared a sketch embodying his modifications to which they appended the admonition: "We trust that this arrangement is only for the purpose of convincing yourself that it is not a good one." Also included was the architects' own proposal, which they endorsed in the strongest terms: "...we are seriously of the opinion that it is in any conceivable respect enormously better than anything we can have done before.... We should con-

sider it a catastrophe from an architectural standpoint if the last arrangement you wired were to be firmly fixed upon."⁴⁴

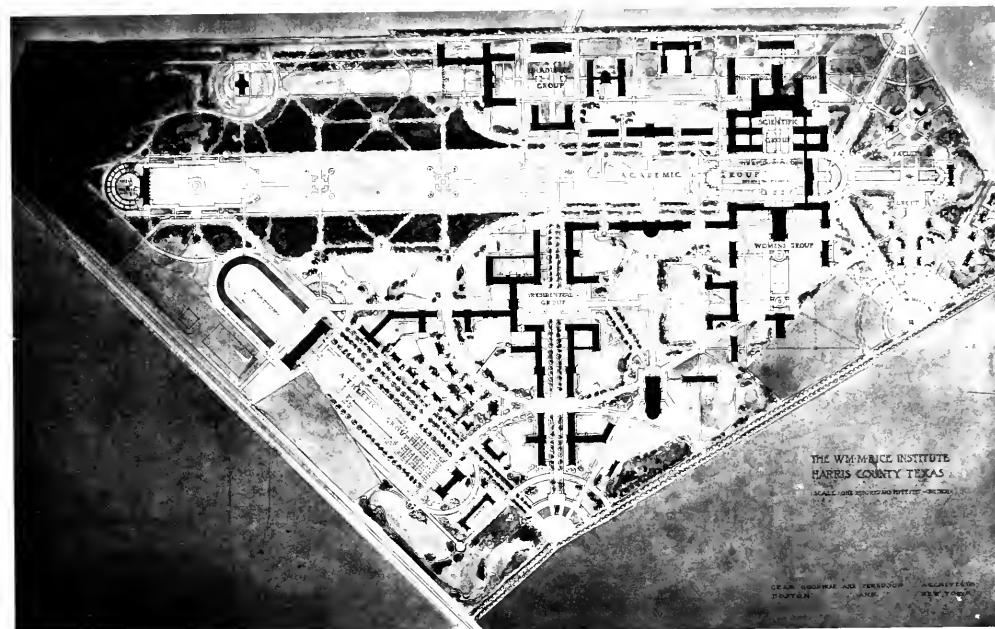
Another colored-pencil-on-tracing-paper sketch, undated but presumably of 14 January, illustrates this counter-revision [14].⁴⁵ The main entrance comprised three drives converging at the site's northeast corner. By a sleight-of-hand, Main Street Road was pressed into service as the third, balancing drive. The preservation of diagrammatic symmetry in the tight angle at this corner resulted, ironically, in an asymmetrical three-dimensional aspect. Along the main route of approach, through this wooded quadrant, the president's house and a women's dormitory confronted each other at the first cross-axis. The administration building remained in place inside the central ring road, although its transverse wings were greatly extended. The two ranks of buildings flanking the administration building and defining the campus were much simpler in composition: long narrow rectangles, sliding past each other in the forward-most buildings (labeled "Philosophy" and "Academic") to demarcate the transition from the campus to the central square in front of the auditorium, an arrangement excerpted from Goodhue's proposal.

On the second cross-axis, the mechanical plant had been pushed further north, near the boundary line, with an additional layer of laboratory buildings (labeled "Chemistry" and "Physics") situated between the main science quadrangle and the campus. The graduate quadrangle, as in earlier plans, terminated the third cross-axis. This group, like the main entrance, gave further evidence of Cram, Goodhue and Ferguson's ingenuity in exploiting circumstantial conditions to further compositional intentions. A biology building, technically part of the science group, balanced the medical college to define the edge of the graduate quadrangle. Formal interdependence and functional autonomy coexisted without compromising the integrity of the planners' intentions or actual patterns of use.

In accordance with Lovett's suggestion, a fine arts group replaced the chapel.⁴⁶ A dormitory was located next to it on the third cross-axis. Several days later, writing to inform Lovett of preliminary estimates for initial construction, the architects again pressed the superiority of their counter-proposal to his suggested relocation of the administration building. "It seems to us that it would be shortsighted and too much like the methods that have been followed in the past in American colleges to sacrifice so much for a temporary advantage. We cannot in the least feel that the long avenue from the entrance to the grounds is objectionable either at the starting or the end. The longer the approach is, within reason, the more effective it will be."⁴⁷

A crisis regarding the terms of the institute's contract with Cram, Goodhue and Ferguson briefly obscured other considerations. The architects, however, remained at work on the project while the difficulties were being resolved. Concurrently, negotiations were begun by the trustees for acquisition of the eight-acre Weber tract, which would give the institute full frontage along Main Street Road.⁴⁸

11 Proposed general plan. Boston office, 5 October 1909.
12 Proposed general plan. New York office, 5 October 1909.



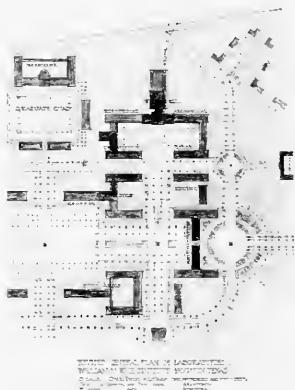
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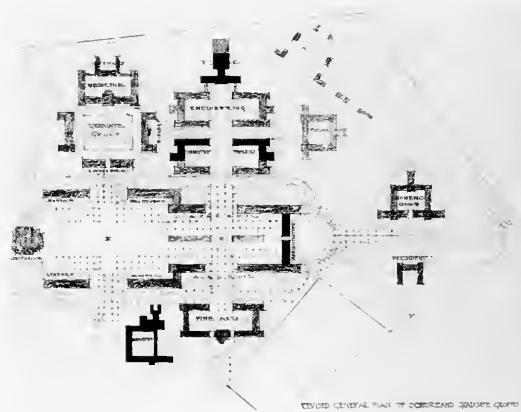
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13 Revised general plan of laboratories, 1 January 1910.
 14 Revised general plan of science and graduate groups, 14 January 1910(?)

REVISIONS AND
COUNTER REVISIONS



13



14

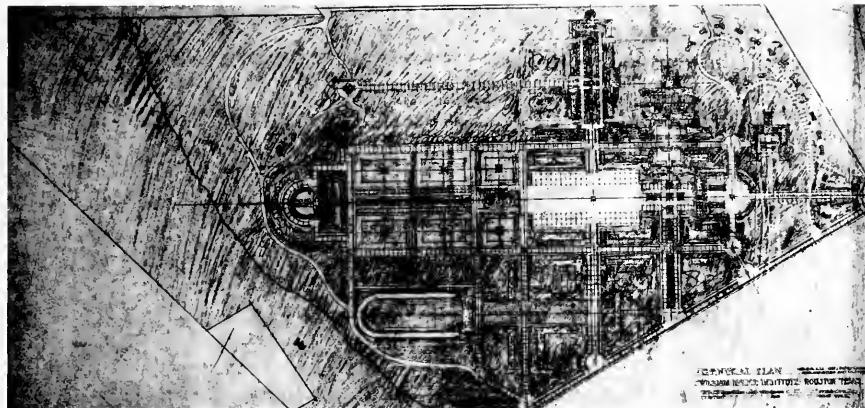
WITH planning for the initial buildings underway, the architects continued to seek Lovett's approval of a general plan. The president, however, avoided a final authorization. In early February Lovett directed the architects to study the possibility of constructing the administration building, complete with its wings,⁴⁹ which, as the drawings and Cram, Goodhue and Ferguson's letter of 18 January indicate, were to have been built in a later phase. The president, however, advised the architects to consider climatic exigencies more seriously in working out this proposal. "...I should not be willing to have wings constructed precisely in the manner called for in any block plan that has been submitted, objecting in every instance to the length of the continuous line of buildings which would prevent the free circulation of air so essential in a climate like this, where removing all obstructions to the gulf breeze is a primary requisite for comfort. For instance, in the last received plan it would be necessary to make a break in each of the long wings adjoining the administration building, thus constituting distinct and separate buildings of the detached ends."⁵⁰ Despite this criticism the architects responded with enthusiasm, taking up Lovett's suggestion that he delay construction of a physics building and proposing that he do the same with the chemistry building, temporarily incorporating these laboratories in either of the administration building's transverse wings.⁵¹ The firm's correspondent reasoned, in a letter to the president, that withdrawing the physics laboratory from immediate construction would leave a chemistry building "quite isolated and comparatively insignificant,"⁵² as they were intended to constitute a distinct group (as shown in the plan presumably dated 14 January 1910).

President Lovett journeyed north in late February, paying a week-long visit to the architects in Boston, where he surveyed the latest proposals for the administration building and the general plan.⁵³ A letter from Cram, Goodhue and Ferguson to Lovett of 5 March indicates that the general plan was altered to accommodate a new scheme for the administration building. Unfor-

tunately, neither sketches of the revised general plan nor of the revised administration building survive, so that reconstruction of the changes is a matter of conjecture. It is clear, though, that the main axis of the revised plan paralleled Main Street Road, and that the main entrance road was a thoroughfare perpendicular to the main axis and Main Street Road.⁵⁴ The architects changed the orientation of the administration building so that it acquired a north-south frontage. The H-shaped configuration was retained, but the exact site of the relocated administration building is unknown.⁵⁵ In response to the architects' request that he approve this revised plan, Lovett wired that it was "under advisement." The president objected to the elevation treatments proposed for the reoriented administration building, calling them "unsatisfactory." Moreover, he now indicated reservations about putting off construction of permanent laboratories and allocating temporary space for these facilities in another building.⁵⁶

President Lovett's telegram elicited two letters and one telegram from Cram, Goodhue and Ferguson, dealing mainly with the elevations of the reoriented administration building. The architects acknowledged Lovett's desire to dispense with the proposed transverse wings; they therefore wished to know what was to be done about the laboratories, and whether the president would authorize the layout contained in the current version of the general plan.⁵⁷ Lovett replied to their telegram of 10 March with a letter which still withheld approval: "In regard to the position of the administration building, there must still be some doubt, owing to the fact that we are not yet satisfied with the general plan and are considering modifications."⁵⁸

During the next two weeks a flurry of wires and letters regarding the orientation of the administration building was exchanged between Houston and Boston. In retrospect, it would seem that the president's aversion to any of Cram, Goodhue and Ferguson's proposed elevations for the reoriented building was the principal factor in determining the final configuration of the



THE GENERAL PLAN
APPROVED

15

general plan. Lovett telegraphed the architects on 14 March, asking their opinion about employing a general plan scheme like that proposed on 14 January.⁵⁹ The Boston office's reply is lost but, on 16 March, they mailed the president a colored-pencil-on-tracing-paper sketch, illustrating an amended version of the January scheme [15]. Following two more days of telegraphic communications, the architects sent Lovett a long letter explaining that the resolution of the controversial elevation was dependent on orientation, and orientation was dependent on the layout adopted for the general plan.⁶⁰ On 21 March, Lovett finally reached a decision, cabling the architects in Boston that he would approve "in principle" a scheme with the major axis parallel to the northern property line and with the administration building oriented in an east-west direction, as in the 16 March proposal.⁶¹

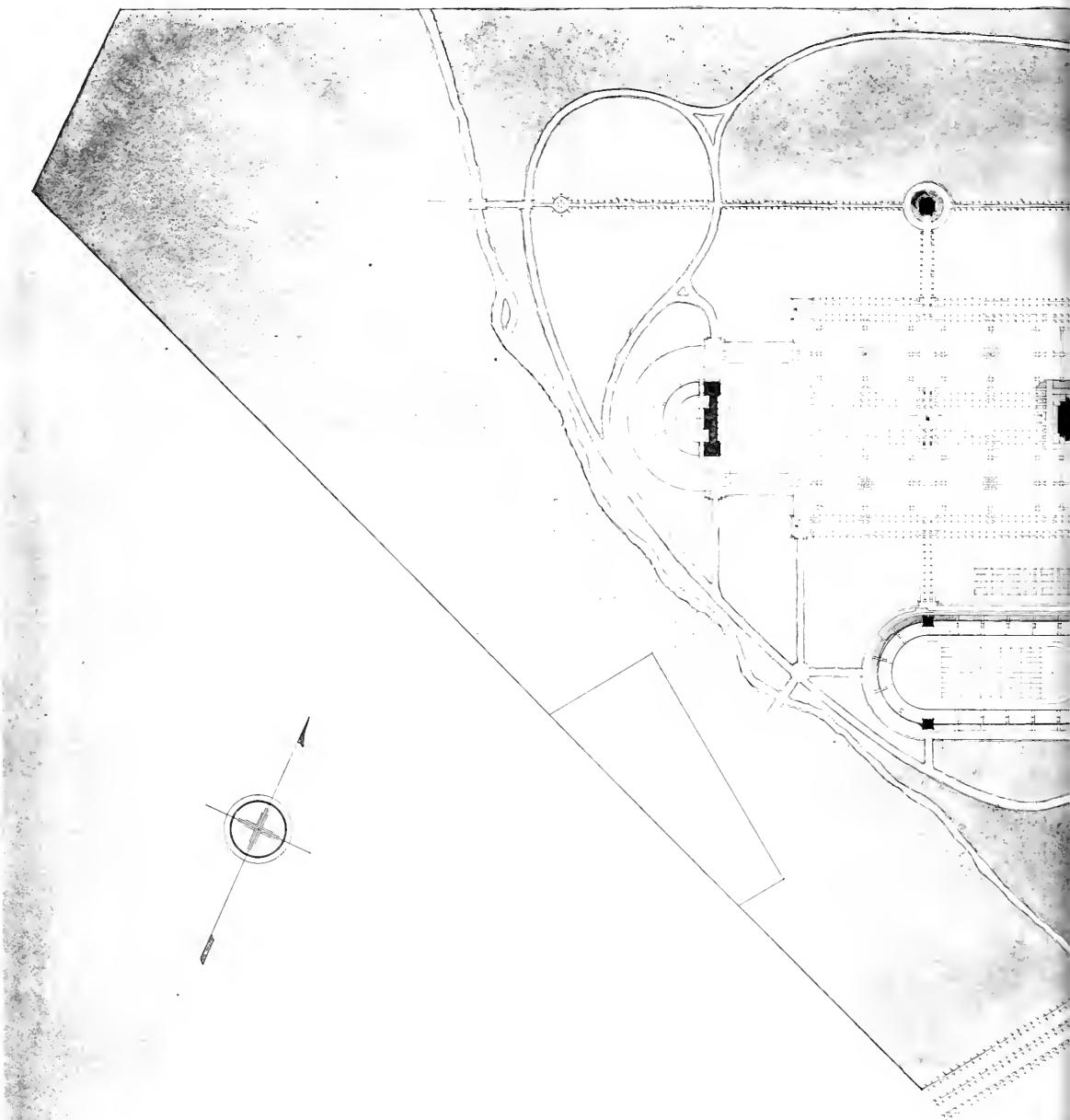
The architects mailed Lovett, at his request, the six previous general plan schemes. On 29 March, Lovett returned these, along with a diagram illustrating his suggested modifications.⁶² Cram, Goodhue and Ferguson responded with approval to all of Lovett's apparently minor changes and promised to begin preparation of a presentation drawing at once. William Ward Watkin produced a large-scale preliminary drawing illustrating the disposition of roads and buildings based on the schemes of 14 January and 16 March. The administration building straddled the major axis, framing the vista from Main Street Road. In front of the administration building, defining a large forecourt, were a women's dormitory and a fine arts group. Behind the women's dormitory, in the northeast corner, lay the faculty residence quarter.

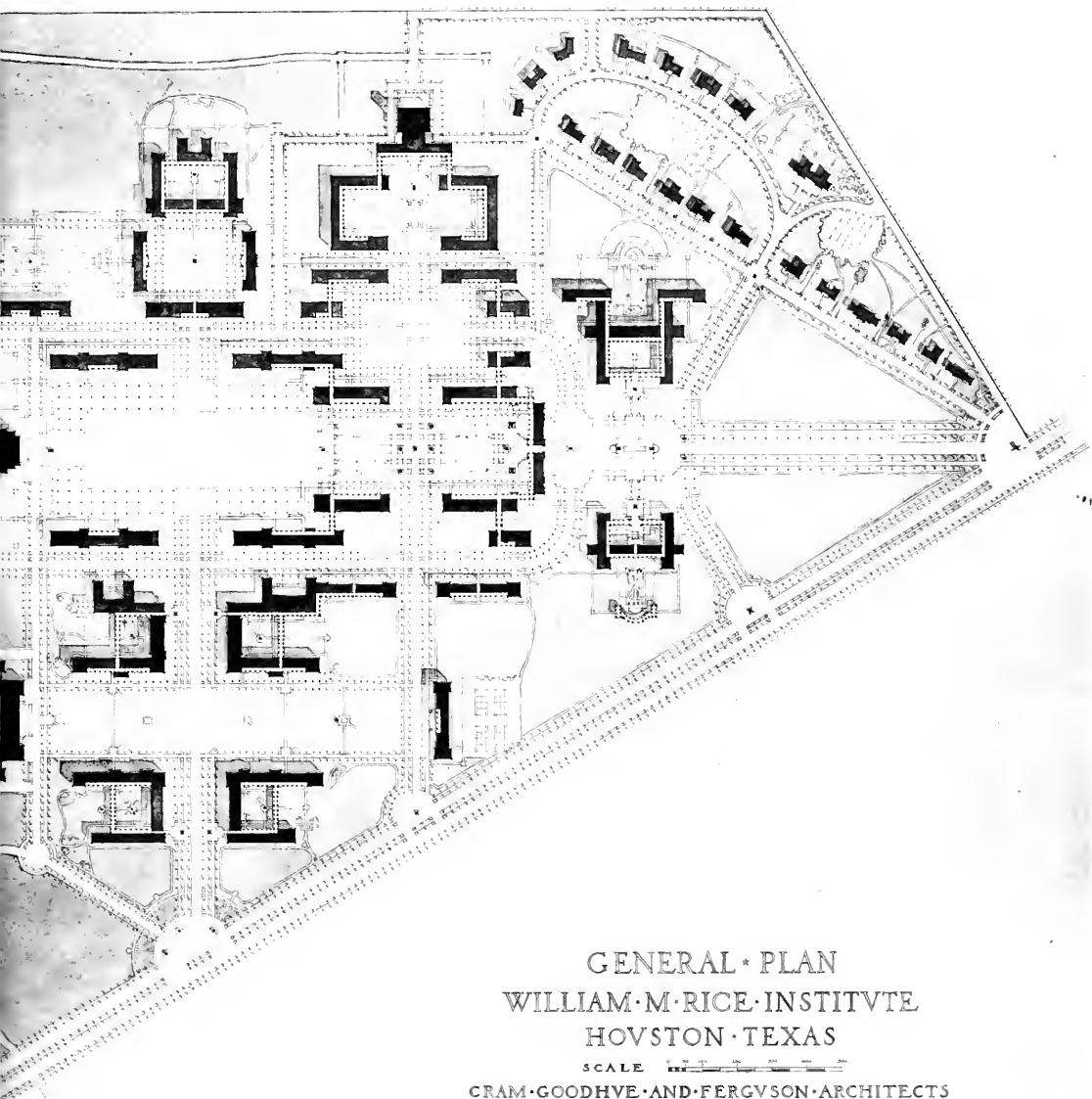
Flanking the administration building on the campus side were parallel ranges of slab-like buildings. These slabs represented, in effect, the wings of the administration building, pulled apart from it to obtain continuous ventilation as President Lovett had suggested.⁶³ Behind each slab was a smaller block, intended as a wing of the main building. Interconnecting these groups were

cloisters which ran both along and through the buildings. The alignment of subsidiary blocks in the group nearest the administration building controlled the placement of the group immediately to the west, where parallel rows of slabs slid past each other, providing an opening out from the campus to the central square. Bounding the square on its western extreme and interrupting the main axis was the auditorium.

North of the campus, the two quadrangles sitting at the heads of the major cross-axes comprised separate entities; they were no longer joined compositionally as in the 14 January sketch plan. At the head of the third cross-axis sat an unidentified building (probably the infirmary) and terminating the vista along the fourth, and final, cross-axis was an observatory. This fourth cross-axis bisected the Persian gardens and descended through the stadium, determining the point at which the bleachers returned in a half-circle to enclose the west end of the playing field. The whole arrangement of the site south of the campus came directly from Goodhue's scheme: two layers of dormitory blocks ranged along a mall (parallel to the central axis), closed by the gymnasium and the stadium on the west end and by the student commons building on the east end. Watkin's drawing also indicated the pattern of tree planting and the distribution of paths, sidewalks and such ornamental landscape features as pools, fountains and statuary sites.

At the end of May the president approved the final proposal, and Watkin began preparation of the huge (five and one-half feet by three and one-half feet) wash rendering of the general plan which became the official plan of the Rice Institute [16]. The only ensuing complication was the architects' unwillingness to leave off the labels identifying the various buildings and groups as President Lovett wished,⁶⁴ a point on which they finally capitulated. The rendering of the general plan was completed on 25 July and mailed to Lovett.⁶⁵

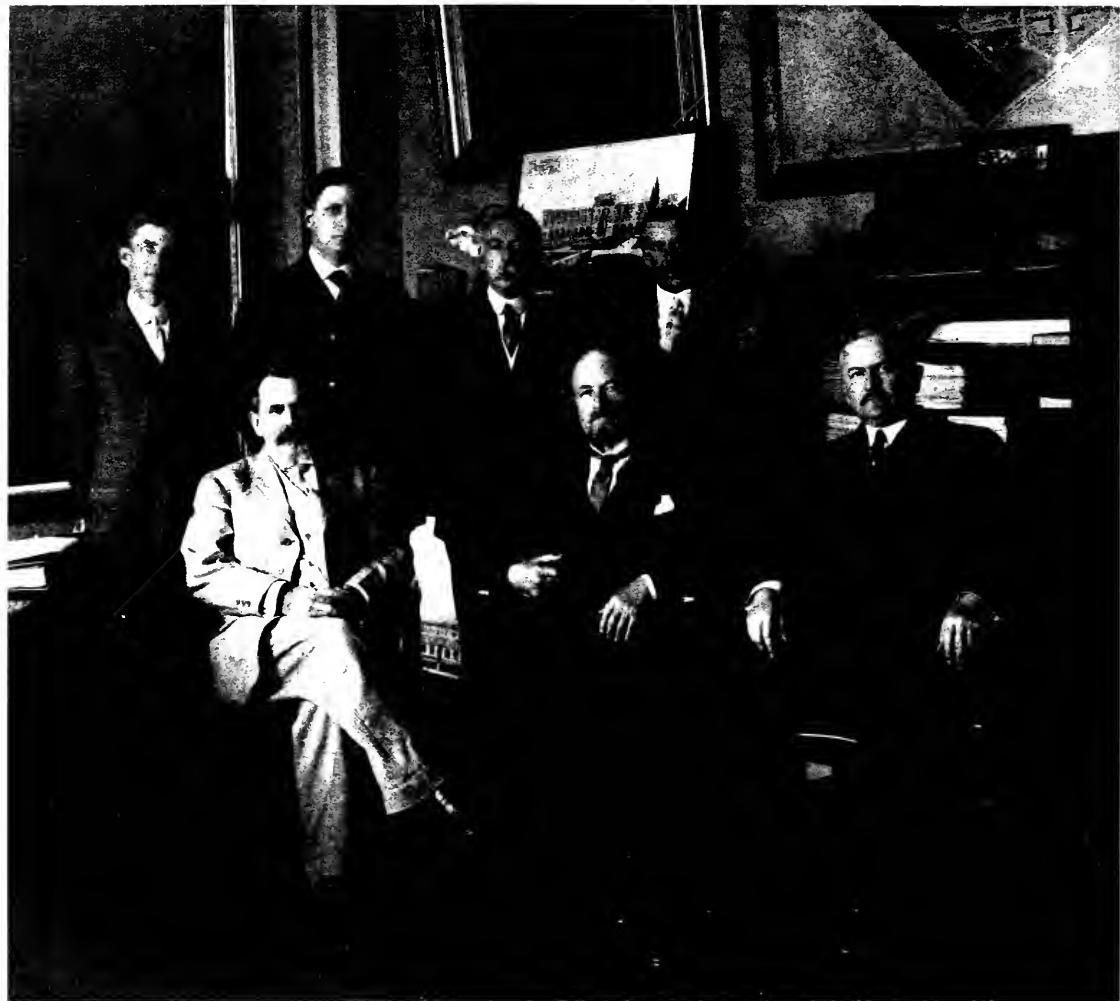




GENERAL PLAN
WILLIAM M. RICE INSTITUTE
HOUSTON, TEXAS

SCALE 1/750

CRAM, GOODHUE, AND, FERGUSON, ARCHITECTS
BOSTON AND NEW YORK



17 The trustees photographed at the institute's business office in the Scanlan Building, 1911. From left to right: (standing) Benjamin Botts Rice (1873-1958), Edgar Odell Lovett, Emanuel Raphael (1847-1913), William M. Rice, Jr. (1857-1944); (seated) James E. McAshan (1857-1916), Cesar M. Lombardi (1845-1919), James A. Baker (1857-1941).

THE development of the architecture proceeded simultaneously with the development of the general plan. While both the arrangement of spaces within the buildings and the composition of their elevations were the subject of correspondence between the architects and the president, the conception underlying this development must have been communicated verbally, for it is not discussed in the letters. The earliest information about the architecture is contained in the *Houston Daily Post* report of Cram's and Goodhue's visit to Houston in November 1909. The account, published without illustration, included a description attributed to Lovett of the future Rice Institute buildings:

An effort has been made by the architects to coordinate many of the Southern versions of architectural design as distinguished from Northern Gothic; to the whole they have successfully imparted a distinctive quality which marks it as...American of the Southwest...and finally, as scholastic...Specifically, it will be a round arched style based on the Southern development during the eleventh and twelfth centuries of the architecture of the Byzantine and Carolingian epochs. It will bear some resemblance to the early medieval work of Italy, South France and North Spain, and will show borrowings from the East and also from the Spanish missions of Mexico and the Southwest.⁶⁶

The rationalization behind this stylistic program was Cram's. Twenty years later, he twice published accounts of the considerations which guided his design of the institute buildings. In 1932, the architectural magazine *Pencil Points* asked Cram to respond with an essay to the rhetorical title: "Have I a Philosophy of Design?" In the November number, Cram replied with an apology of "...what, for lack of a better name, we may call eclectics."⁶⁷ Looking back over what he considered to be the confused and degenerate state of American architecture when he commenced practice in 1889, Cram summarized: "I suppose what we did, what I did anyway, was to take each problem on its merits and try to solve it as a particular matter for solution....I tried to think out what was the logical line to follow."

The Rice Institute provided one of three examples enumerated by Cram as to how the "logical line to follow" could be determined under given circumstances:

A college was to be created *de novo* in Texas. What to do? Here was a plane-like area with no cultural traditions except those of the flimsiest with Mexico. Racially it was New England, culturally it was Middle West. What style could be used as a *point d'appui*? The so-called "Mission" style... the strange and effulgent Renaissance of Mexico...the colonial of New England, the "Collegiate Gothic"? None seemed really possible under the circumstances, either because of obvious affectation, inapplicability to climatic conditions, prohibitive costs or just obvious impropriety.

...No, this college had at least to suggest the learning and culture that reached back, essentially unchanged through Oxford, Cambridge, Paris, Heidelberg to Salerno, Cordoba, Byzantium and so to Alexandria, Athens, Thebes and Memphis. For this reason a quite new theory was postulated, and thus:

Medieval art was the result very largely of religious fervor under monasticism working itself out through the fresh and uncorrupted blood of Northern races, translated from the Baltic lens and Scandinavian fjords to the friendly fields of the

Mediterranean lands. Now, suppose this great religious revival, which had its earliest beginnings with St. Benedict in the seventh century, had operated, not on rude, though lusty, barbarians from the North, but on the Latin races of Italy, Spain and France? What would have been the architectural result?

The first buildings...are an attempted answer. The method followed in establishing this stylistic scheme was to become familiar with what had been done around the shores of the Mediterranean: Syrian, Constantinean, Byzantine, Lombard, Dalmatian, French, Italian and Spanish Romanesque with a covert glance at the Moorish art of North Africa, and then try to put oneself into the spirit of enthusiastic builders of Southern race and see what would be the result. There is, I think, nothing archaeological in this...work here at Houston, and in a measure, it does achieve what we were aiming at.... And always...the dominating idea was that this was an institution of higher learning and that it must *look* like a college, and one built in a warm climate.⁶⁸

In his autobiography, published four years later, Cram succinctly restated this method:

We wanted something that was beautiful, if we could make it so, Southern in its spirit, and with some quality of continuity with the historic and cultural past. Manifestly the only thing to do was to invent something approaching a new style (although not too new) and to develop a psychological excuse for it...I reassembled all the elements I could from South France and Italy, Dalmatia, the Peloponnesus, Byzantium, Anatolia, Syria, Sicily, Spain and set myself the task of creating a measurably new style that, while built on a classical basis, should have the Gothic romanticism, pictorial quality and structural integrity.⁶⁹

CRAM'S search for an appropriate architectural expression of place and purpose may be viewed as part of a more general reaction to the dominance of neoclassical architecture in the United States since the turn of the century. In challenging this dominance the authority of tradition, as such, was not discountenanced. It was, rather, the desire to articulate programmatic, institutional and cultural particularities—freeing building design from the "repressiveness"⁷⁰ of a single encompassing style—which propelled a return to eclecticism. But because the idea of eclecticism was inextricably associated with the architecture of the mid-nineteenth century (Cram, among others, had referred to that period as the "Dark Ages of American Architecture"),⁷¹ its proposed rehabilitation occasioned some critical trepidation and demanded a justification which Cram was ready to attempt.

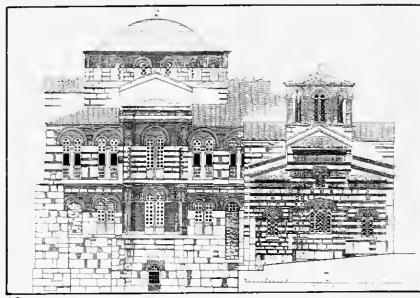
Although Cram asserted the superiority of Christian culture as an ideal, he also acknowledged the impossibility of adhering, without deviation, to it in practice. Cram discerned the seeds of this inexorable conflict between ideal and actuality in the historical situation, as he was to note in a discussion of style in architecture in 1913. Whereas Hellenic, Byzantine, Gothic and certain periods of Chinese art, "the really great arts in history," had developed "insensibly and instinctively," this was no longer a possibility, because "once the great parabola of medieval civilization curved downward to its end," only a "premeditated architecture," a style "deliberately devised and worked out according to preconceived ideals," was possible.⁷²

A SYLLOGISTIC ECLECTICISM

18 Monastery of St. Luke of Stiris,
Katholikon and Theotokos, Phokis,
Greece, early tenth century. East
elevation.

19 Praça do Comercio, Lisbon,
Portugal. Eugenio dos Santos de
Carvalho and Carlos Maridel,
1755-1763. Aerial view.

ASSOCIATION AND METAPHOR



18

Hence allusion, while vital to the maintenance of cultural continuity, had to be willed, in a process which inevitably admitted of choice, of relativism.

The direction which these meditations indicated was one of historicist pessimism.⁷³ But although this destination was often in view in Cram's writings, he usually refrained from taking the concluding steps. Instead he counseled a stoic resolve and (more honestly than most of his contemporaries) committed himself to an eclectic approach. "We must be content to remain self conscious, and if we are to do comparatively good work, we must do the best we can to adapt the various styles of the artistically happier days of the past to the varying nature and requirements of modern conditions," he wrote in one of the essays published in *The Gothic Quest*. "We no longer have a civilization possessing any single element of unity, and therefore our architecture should be just as individual, just as varied as our civilization, for art that is not representative, not expressive, is not art but artifice."⁷⁴

In order to save eclecticism from the licentiousness into which it had allegedly fallen in mid-Victorian times, it was to be grounded in principle. From Cram's explications of the architecture he devised for the Rice Institute, four factors emerge in this role: cultural association, regional expression, climatic affinity and romantic resonance. The interaction of these factors functioned to select the proper architectural elements (by period and culture) from the geographical field opened by climatic affinity and then governed their application as the means for reinforcing institutional identification. Romantic resonance operated to dissolve polemical stridence, dubious historical conjecture and strained correspondence into an allusive and ingratiating formal composition.

In Bertram Grosvenor Goodhue's earliest known Texas project, an unbuilt parish group for the Church of the Incarnation in Dallas of about 1891 [3], a similar rationale (and a cognate architecture) had been employed. The *Architectural Review*, taking note of the project, had congratulated the architect for having "thoroughly recognized and expressed...the climatic conditions" in his church design.⁷⁵ Even earlier, the landscape architect Frederick Law Olmsted, upon being retained to plan the campus of Stanford University



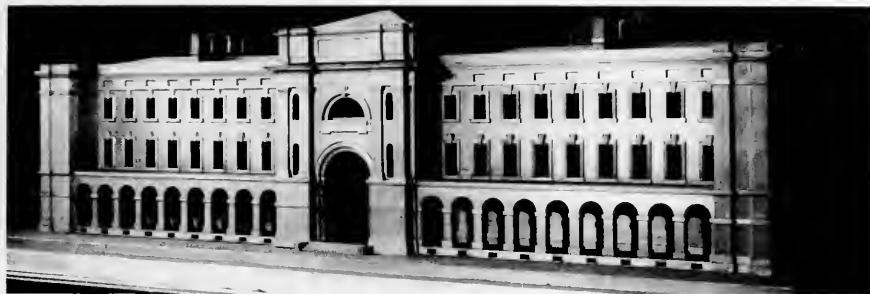
19

in 1886, had advised in regard to the architecture: "If we are to look for types of buildings and arrangements suitable to the climate of California, it will be in those founded by the wise men of Syria, Greece, Italy and Spain."⁷⁶

Something akin to this procedure can also be glimpsed in two comparable projects: the campus plan and architectural studies developed by the New York architect Cass Gilbert for the University of Texas at Austin in 1909, and at the newly established Southern Methodist University at Dallas in 1911 by the Chicago branch of Shepley, Rutan and Coolidge of Boston. Gilbert had projected an architecture based on Spanish Renaissance detail, while Shepley, Rutan and Coolidge resorted to what was apparently the favorite alternative for "Southern" campus architecture, a sort of Beaux-Arts Jeffersonian theme. The chief distinction between these two projects and the architecture of the Rice Institute was to lie in Cram's more adventurous eclecticism.⁷⁷

In part, the liberality with which Cram employed association and metaphor may have been determined by an external stylistic proscription. For although Lovett, in announcing his selection of Cram, Goodhue and Ferguson, had emphasized Bertram Grosvenor Goodhue's expertise as a student of Spanish colonial architecture and his awareness of the "Spanish missions of the neighborhood,"⁷⁸ the firm's architectural conception ultimately bypassed this body of Texas's appropriately didactic Christian architecture. This lapse was later explained as the result of an official (although nowhere else articulated) policy stemming from an aversion on the part of the trustees "to a style that reflected Mexican qualities...so that the field could not be considered."⁷⁹ The firm was left, in Cram's own words, "to develop a new style...and to develop a psychological excuse for it."⁸⁰

WHILE Cram's writings illuminate the development of the Rice Institute project in the broad context of stylistic rationale, most of what is known of specific sources comes from a memoir by William Ward Watkin, the young draftsman in the Boston office who prepared the presentation drawings of the general plan. The complex of buildings most strongly emphasized by Watkin was the tenth-century monastery



VARIOUS SOURCES

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of St. Luke of Stiris in Phokis, Greece [18].⁸¹ Cram, Goodhue and Ferguson's source was probably a monograph of measured drawings published in London in 1901, *The Monastery of St. Luke of Stiris, in Phocis, and the Dependent Monastery of St. Nicholas in the Fields, near Skripou, in Boeotia*, prepared by Robert Weir Schultz and Sidney Howard Barnsley. A variety of ornamental bonds and marble panels, column shafts and carved bands were appropriated from plates in the monograph. Watkin also cited "the excellent brickwork of S. Stefano in Bologna [and] architectural ornament having the refinement characteristic of Ravenna and of the earlier work of Venice and Verona."⁸² These elements were combined with a colossal order of columns borrowed from the monuments of ancient Rome, a pair of slender colonnettes from S. Giacomo Maggiore in Bologna and a miscellany of medieval Italian detail gleaned from George Edmund Street's *Brick and Marble of the Middle Ages*. Cram, Goodhue and Ferguson recombined these items in their design of the administration building and its flanking structures. Penetrated by the sallyport, a triumphal arched opening, this group bore a striking (but apparently quite accidental) resemblance to the buildings surrounding the *Praca do Comercio* in Lisbon, built after 1755 [19].

On the basis of visual correspondence, another unlikely source is suggested: Nicholas Hawksmoor's proposal for the Fellows' Building at King's College, Cambridge of 1712-1713, specifically the west range. Like Cram's administration building, Hawksmoor's three-story project was pierced by a triumphal arch and incorporated an arcaded ground floor passage along its west elevation [20]. Hawksmoor's proposal was never implemented, but his two models were displayed in the late fourteenth century chapel of King's College, an example of Perpendicular Gothic architecture which had won Cram's approbation.⁸³ Hawksmoor's architecture was another matter. Decrying the course of seventeenth-century English church architecture as "a mode of enclosing a certain space from the weather and giving the shell a specious grandiosity," Cram had characterized Hawksmoor's Christ Church, Spitalfields, as merely a "substitute for architecture."⁸⁴ Whether this animadversion toward classicism would inhibit his use of a Baroque precedent is unknown; one can only remark the parallel.

Unfortunately, none of the initial presentation studies of the administration building—to which Cram devoted the most care—survives. However, Watkin described its development in his memoir:

If only I could show you [the administration building's] earliest form as indicated in a sketch made by Mr. Cram himself, you would see instantaneously how true it is that the building met with constant and determined simplification. The first sketch that I refer to was a view of the long facade with the round arched cloisters and the twelve columns rising from the piers of the cloisters. Behind these columns were to be open loggias for the full length of the building. Each of the columns was surmounted by a Gothic niche and finial as elaborate as those of St. Mark's, Venice. Twelve gilded saints, apostles or scholars would have been necessary to fill the picture. The general masses were substantial, but the design pattern was very stringy in its verticals and quite confused by the heavy central tower. At that time the office served in a consulting capacity for Princeton University and Frank Miles Day of Day and Klauder of Philadelphia, architects of the new freshman dormitory group at Princeton, came into the office.... Cram's sketch was resting on the windowsill next to his desk. Day happened to glance at it and with a chuckle asked, "Who's going to buy that wedding cake architecture?" Conversation was confined from then on to matters at Princeton, but Cram's enthusiasm for his labors ended.⁸⁵

As Watkin's reminiscence makes clear, Cram's *parti* premediated the realized building. The Boston office's plan C and their rendered presentation plan both showed the administration building as a long, thin slab linked at either end by arcades to long, thin buildings set perpendicular to it.

THE earliest surviving illustration of the administration building is a wash perspective showing the court elevation [21]. Since it corresponds to the general plan proposal of 14 January 1910, it was probably the "perspective from court" rendering listed on the architects' drawing schedule as having been completed on 18 January.⁸⁶ The proposal is clearly related to Watkin's description of Cram's earliest sketches. The building was depicted as a four-story central block pierced by a tall one-and-one-half-story sallyport and flanked by three-story wings. The wings, each eight bays in length, were bounded at either end by flat-topped, four-story towers, articulating the juncture of two-story transverse wings with long intermediate ranges. The ground floor contained a cloister, with

21 Administration building,
preliminary proposal. Cram, Goodhue
and Ferguson (Boston office), 18
January 1910 (?). Perspective of west
elevation.





22 *Sketches of domed buildings.*

Bertram Grosvenor Goodhue, October

1909.

23 *Auditorium and administration*

building, preliminary proposal. Cram,

Goodhue and Ferguson (New York

office), undated. Perspective of court

elevation.



22

squat columns supporting an arcade composed of alternating voussoirs of brick and stone. Dividing the ground floor from the upper levels was a continuous belt course, reiterating the building's horizontal extent. A screen of free-standing columns, bearing ressaute terminal blocks, marked the division of the long wall flanks into bays. Fenestration was manipulated in these long flanks to express differing internal uses: the double-height faculty chamber to the left of the central block and the two levels of the library and classroom space to the right. The great sallyport arch was framed by layers of carved bands, the uppermost band serving as a station line for the third-floor tower windows. This group of windows was set in a recessed plane, vertically bounded on either side by an expanse of masonry and interrupted only once by fenestration at the fourth floor, where it offset an arched loggia. The transverse wings contrasted with the main flanks and central block in their subdued detailing and lower height. To again express disparity of internal function, these subordinate wings, although identical in massing, were given differing arrangements of solid and void. Except for the continuation of the cloister in the right-hand transverse wing, the use of columns was avoided in favor of buttressed piers.

The use of this motif, which Cram, Goodhue and Ferguson would adopt as one of the attributes of the architecture devised for the Rice Institute, appears in the only published architectural study by Bertram Grosvenor Goodhue [23]. This was probably part of the original presentation material and presumably represents Goodhue's own ideas about how the architecture of the institute should be developed. In his memoir Watkin recalled, after reviewing Cram's theoretical proposition for obtaining an appropriate style: that "no such obstinacy was characteristic of Mr. Goodhue."⁸⁷ Goodhue's point of departure, according to Watkin, was a recent trip to Iran. A drawing [22] sketched by Goodhue on the flyleaf of a book from his personal library (inscribed with the date October 1909) suggests a fascination with certain compositional and ornamental themes abstracted from Persian architecture.⁸⁸ The tall, four-square, tiered structure he delineated relates to the auditorium and administration building proposed for the Rice Institute. Although the ground plan inferable from the presentation rendering of the auditorium did not match the arrangement of Goodhue's preliminary sketch or that illustrated on his site plan (which, of course, had been rearranged in Boston), the scale and richness of the project corresponded to the intentions embodied in his general plan.

The auditorium was conceived as dominating the great square. An entrance pavilion, abutted by two-story wings, was pierced by a giant exedra, a Romanized version, it would seem, of one of the *eyvans* of the early seventeenth-century *Masjed-e-Shah* of Isfahan. A connecting element linked the pavilion to the main block of the auditorium which, like the pavilion, appeared to be square in plan. The corners of both pavilion and central block were reinforced by vertically continuous terminal bays emphasizing the four-square geometry of the structure. A high, spherical dome, crowned by an attenuated lantern, rested on a fenestrated circular drum, beneath which a high, octagonal clerestory had



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been inserted. The dome, drum and clerestory all were faced with multi-colored tiles and marble. Just behind the front elevation of the complex, an arched cloister was tunneled through, curving around the convex rear side of the exedra to join the auditorium with two flanking buildings. Arches, picked out with polychrome voussoirs, were set between buttressed piers, reiterating the planar advance and recession of the framing corner bays. The massing of the two flanking buildings represented an elaboration of this approach.

Goodhue's rendering, together with one by Cram and the general plan drawing, was published in a 1911 issue of the *Architectural Record* devoted exclusively to the work of Cram, Goodhue and Ferguson. Montgomery Schuyler, the foremost American architectural critic of the period, provided a text for the issue. Of Goodhue's scheme, he remarked:

...the Auditorium, designed for execution in concrete, and with decorations in tile, evidently goes far East of Venice for its inspiration. It is Saracenic, and Saracenic distinctly of the Asiatic variety as distinguished from the Arabic of Egypt and the Moorish of Africa or Spain....The masses here are, without question, effectively established and related, and the perspective must inspire in the sensitive beholder a wish to see the completed work. Such an erection as this dome is sure to be a striking and important landmark in the midst of the unbroken level which surrounds it interminably on every side.⁸⁹



Neither Lovett's nor Cram's response to this proposal is indicated in the correspondence. One may surmise, however, that Cram's own proposal struck the institute authorities as more suitable. Yet the Boston office incorporated a version of the New York office's auditorium (designated the commencement hall) and great square into their plans. Descriptions of the future campus buildings which appeared in the architectural press soon after the institute opened also mentioned the hall as the central set-piece of the general plan.

The earliest surviving drawing from the Boston office is a rendered perspective detail of a dormitory [24].⁹⁰ This depicted an extruded bay rising in a series of irregularly offset levels as it stepped back into the mass of the building. Low columns supported a brick arcade on the ground floor. The second floor was treated as a *piano nobile* and the third as an attic sheltered beneath the broad eaves of a sloping tile roof. Ornament was concentrated almost entirely on the protruding bay. The ground floor was faced with *cloisonné* panels. Stone surrounds on the second-floor windows terminated in Italian Gothic arches. A stone balcony and tile work in the tympanum and spandrel panels contributed to the decoration. In contrast, the dormitory wall was a uniformly plastered surface broken only by unframed window openings. Here, according to Watkin, Cram looked for inspiration to the stucco surfaced buildings of Genoa of "more diverse composition and freer expression of their forms than those of other cities."⁹¹

The use of a vernacular manner implied a hierarchy of functions and types, a key to the architects' method of characterizing the relationships between building groups.

FOLLOWING the architects' presentation of their proposals to the trustees in November 1909, Lovett wrote to Boston to request changes in the administration building, principally certain accommodations which he felt would not be required immediately.⁹² Because the trustees wanted the architects to begin work at once on the administration building drawings,⁹³ Cram, Goodhue and Ferguson acceded to all of Lovett's suggestions, asking only that the drawings be returned to them so that studies at a larger scale could be begun.⁹⁴ In his letter Lovett indicated that the administration building had acquired cross-wings, which he asked be reserved for academic purposes only.⁹⁵

The architects had commenced work on quarter-scale plans in early January 1910. Economic considerations led the president to instruct that the transverse wings not be considered as part of the initial construction.⁹⁶ At the end of January, during the contract crisis, the president received one-quarter-inch scale drawings of the administration building to present to the trustees. Enclosed with the drawings was a memorandum from Cram, Goodhue and Ferguson concerning building materials and the rearrangement of interior spaces. The architects wrote that the president's offices and the trustees' room were to be relocated in the fourth floor



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over the sallyport, the other floors being reserved for academic and administrative use. Regarding their conception of interior planning, the architects' correspondent noted: "Our idea has been to lay out the plans so that, with the exception of the brick partitions around the stairs, practically all of the other partitions being of light construction may be changed from time to time at comparatively small expense, should such changes prove desirable."⁹⁷

Interior finishes were to be of fireproof construction: tile or terrazzo floors, marble, tile or concrete base moldings and Guastavino tile vault ceilings. For the exterior color scheme, a light pink brick with gray mortar was suggested, a gray brick also was under consideration, as were white marble, Istrian stone and pink Tennessee marble for trim. Lest Lovett object to the expense of the desired materials, the architects warned somewhat defensively: "We feel with regard to this building that [a] greater expenditure is [more] desirable than in the case of any of the other buildings at present contemplated. Color and texture are of the utmost importance, and for this reason we are looking up the whole question of materials that, under ordinary circumstances, or where other buildings are concerned, would be unjustifiably expensive."⁹⁸ This was followed by a paragraph enumerating the economies to be achieved by staging the finish work. The faculty chamber "should have at some time rich and effective finish, but at present we think the walls had best be left in simple plaster, as indeed should be done in the case of all the rooms in the 'Administration Building.'" As for the sallyport: "Ultimately the vaults of the grand entrance through the tower should be covered with mosaic, but this, of course, must be omitted for the present."

It was in response to these drawings that the president asked the architects to include the transverse wings in the first phase of construction, advising them of the financial "retrenchments" entailed in his decision and, as noted, of climatic exigencies. Lovett protested the inclusion of double-height loggias, which occurred at the second- and third-floor levels along one face of the building. Nor was he particularly impressed by the elevations that the architects had sent: "I cannot help saying that in those respects in which these detail drawings differ from the original color sketches, I do not consider them improvements. In particular, the simplicity and charm which are possessed by the preliminary watercolor seem to me to have suffered in the details of the tower and in the cornices and roof-line where a parapet has been added, which to my eye partakes too much of the character of a fringe... I am strongly desirous that the simplicity, in line and surface, of your first conception be preserved, and wish that it might be shared with the outside or entrance elevation, which, to me, is not so pleasing."⁹⁹

Cram, Goodhue and Ferguson replied with alacrity to the suggestion that the administration building be constructed forthwith, estimating that the enlarged building would cost \$400,000.¹⁰⁰ They were anxious, however, to rebut Lovett's disapproving comments about their detailed elevations:

With regard to your criticism of the greater scale plans, we would say as follows. You must remember that in large scale drawings, much more detail is shown than in small scale drawings, and that much of the detail would hardly be visible in actual construction. In other words, a portion of it, particularly the fancy brick laying, is for the purpose of obtaining texture, and not design, and in construction you would not see the elaborate mixing up of lines and masses as in the quarter scales, but rather merely a rich, varied texture for the wall surface. Its effect against the sky would be extremely fine, while it plays a particularly important part in the architectural composition. We may say here that the drawings have been seen from time to time by a good many competent architects in Boston. One and all they have expressed a surprising degree of admiration for them and in every case the addition of the balustrade has been declared a most essential improvement of the design.¹⁰¹

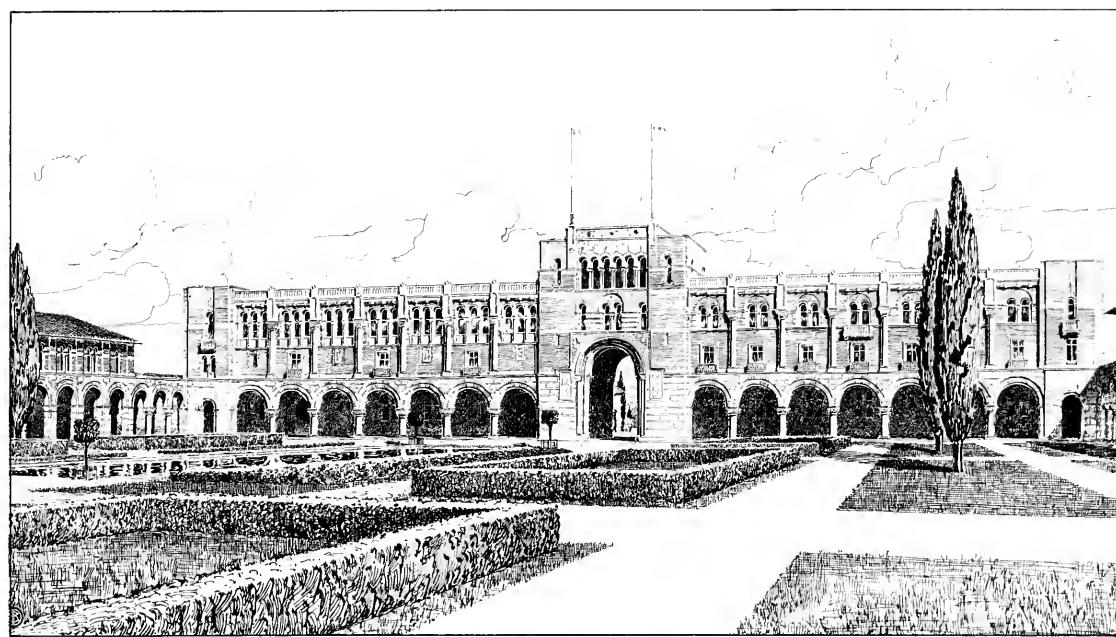
The architects especially defended the loggias flanking the sallyport on the east elevation of the building. Claiming that their conversion to additional floor space, as the president suggested, would not represent a significant practical gain, they admonished Lovett: "these loggias are of the most enormous importance in the architectural composition of the west [sic-east] front, giving us exactly the composition of light and shade that we consider imperative."¹⁰² Within a week, the president was notified that studies were underway to modify the two wings for temporary use as physics and chemistry laboratories, and that enough unnecessary floor space had been eliminated to reduce the estimated construction cost by \$75,000.¹⁰³

Another of Lovett's journeys to Boston took place at the end of February. It was then that the latest general plan scheme was altered and the administration building reoriented north-south, precipitating the postal campaign over the resulting changes in elevations. The architects first proposed to reverse the main facades of the administration building, so that the ground floor cloister would face Main Street Road. The double-height loggia was to be eliminated from what would become the north side "leaving the first story as an uncovered parapeted terrace on either side of the central motive." The architects would "then project the two wings slightly obtaining in the extra area of these wings the rooms we would lose on the second and third floors of the main building by carrying the uncovered terraces through to the stairways on each side."¹⁰⁴ This perhaps would have resembled Hawksmoor's treatment of the arcade and projecting end bays of his King's College project.

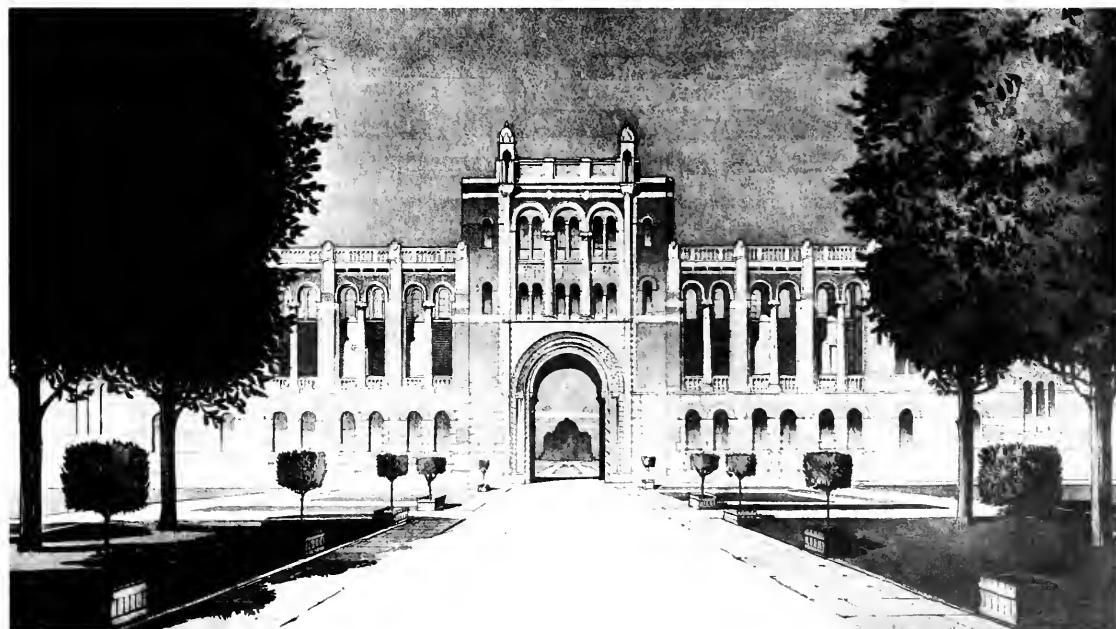
Lovett, upon receiving this proposal in sketch form, cabled his dissatisfaction. The architects were instructed to proceed with working drawings on the "cloister elevations and floor plans last considered in Boston."¹⁰⁵ Lovett also advised them that he had decided to construct a separate laboratory building so that temporary laboratory space was no longer required as part of the administration building program. The president's criticisms were affirmed by the architects, who proposed two alternatives: scheme A, in which the cloister elevation would be affixed to the Main Street Road (south) side of the building, the campus (north) elevations to be resolved later; or scheme B, in which the cloister elevation remained on the campus side, and the Main Street

25 Administration building. Perspective of west elevation, 21 April 1910.

26 Administration building. East elevation, 21 April 1910.



25



26



27

Road side reacquired the flanking loggias, extended from three bays to five bays in length to afford the faculty chamber and library adequate sun protection.¹⁰⁶

Lovett, having earlier expressed his dislike of the elevation proposed for scheme A, informed the architects that the new elevation for scheme B involved an "objectionable sacrifice of floor space" in the five-bay loggias and further wondered whether the arcade was too long for the "best effect."¹⁰⁷ In response Cram, Goodhue and Ferguson sent the president a long, rather aggrieved letter detailing both the functional and aesthetic reasons governing their choice of five bays as an appropriate length for the south facing loggias. They reasoned that fewer bays required a different situation and suggested that if Lovett wanted a three-bay loggia instead of a five-bay loggia, he ought to authorize the general plan proposal sent him on 16 March, which oriented the administration building in an east-west direction. As for the "best effect," the architects replied:

Now can you not place some reliance on us as your chosen architects when it comes to a matter that, like this, is one almost wholly of design? It seems to us that it is really our function to determine more or less questions of this nature. Where cost, practical considerations or the sacrifice of valuable space is concerned, it is, of course, your duty to pass upon everything we suggest, but while we welcome every particle of assistance you can give us from an artistic standpoint, we must admit that this case of the Rice Institute is the only one we have ever had in our experience where the highest authorities were so exceedingly conscientious as to strictly architectural considerations.

We repeat this is not a criticism, for no one welcomes more than we do the really penetrating criticisms you have made, or who recognizes more fully the motive that underlies these criticisms. All we are trying to do is take upon our own shoulders some of the responsibility that belongs there, and so we seriously ask you to leave to us, as far as you conscientiously can, the determination of questions which, in themselves, are strictly architectural.¹⁰⁸

THE letter seems to have served the intended purpose. Lovett authorized the general plan of 16 March, thus finally fixing the orientation of the administration building. In gratitude Cram, Goodhue and Ferguson sent the president an effusive letter of congratulation.¹⁰⁹ Concurrent with the production of the general plan drawing, the working drawings for the administration building (facing east-west, without transverse wings, but with three-bay loggias) were begun. At Lovett's request, the architects sent him two drawings of the building: one, a wash rendering of the east elevation as seen from the Main Street Road approach drive [26]; the other, a pen and ink perspective of the west side, viewed from the campus [25].¹¹⁰

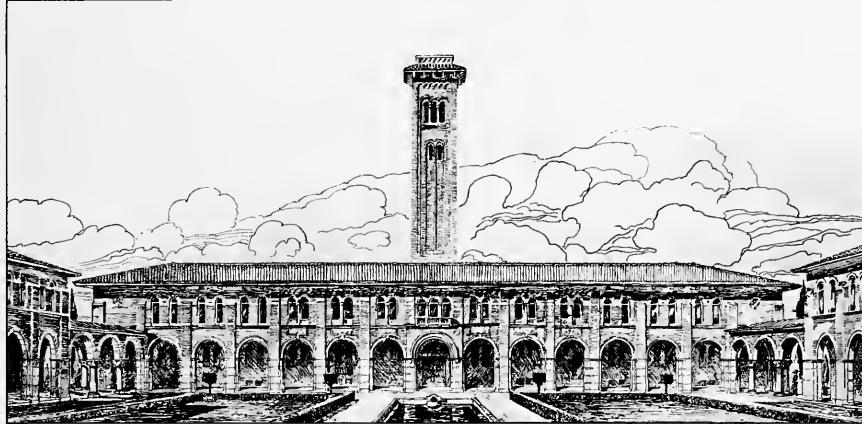
The wash rendering by Alexander E. Hoyle, one of Cram's chief draftsmen, presented the east elevation as a central block symmetrically flanked by dependent wings. The sallyport, enclosed beneath rolled stone soffits, pierced the central block opening an approach to the campus beyond. Above the sallyport, two tiers of windows were compacted within an arcuated stylar screen. Enframing this superimposed composition were two extremely slender engaged columns, rising the full

height of the central block. At the summit of these columns foliate capitals supported flaring impost blocks which carried in turn delicately rendered stone tabernacles. Spanning between the tabernacles in the plane of the wall was a high, solidly paneled stone parapet. The compositional device of a vertical frame was reiterated in brick bounding walls defining the central block. In contrast to the richly textured central motive, these bounding walls were sparingly decorated with horizontal stone bands, their solid expanse broken only by four narrow slot windows.

Shallow planes receded to link the central block and flanking wings. A continuous stone belt course, fixed at the spring line of the sallyport vault, divided the elevation of each wing into a lower and an upper range. Like the central block, the lower range was predominantly of stone, striated with horizontal masonry bands. Horizontal ranks of equally-sized arched openings were paired in bays across the lower range. In the upper range, piers rose between the grouped ground floor windows to articulate the structural bays of the building. Free-standing columns, stationed along the belt course, subdivided the openings between piers. Behind these screens were the loggias, shallow layers of open space looking out over the forecourt. Bounding the two loggias were vertically extruded bays, beyond which another mural flank was indicated. The rendering emphasized the gateway-like nature of the sallyport. Framed beneath it in the distance was the commencement hall, silhouetted against the sky.

The perspective [25] included in Schuyler's *Architectural Record* article of January 1911 was a reworking of the earlier water color view of the administration building, the "side we now all like so much," as the architects had described it to Lovett during the loggia controversy.¹¹¹ Evidently the choice of materials, and especially the use of ornate masonry decoration, had been explored much further. The perceptible height of the flanking wings was increased by the addition of the balustrade which Lovett had described as "partaking of the character of a fringe."¹¹² As on the approach side, stone banding was used to give the building a sense of horizontal continuity. The most significant modifications were in the terminal bays at each end. Slightly extruded, each had become more obviously "closed" in expression; a small arched opening broke through, rather than carried, the wall at the cloister level and the second- and third-floor windows were aligned in a narrow, recessed vertical channel—the same step-back motif used to link the central block and the flanking wings. The administration building was joined to its dependencies by cloisters placed at right angles. The axial progress of the main vista was reflected by a shallow rectangular pool, an item which Lovett eventually rejected for fear that it would become a breeding ground for mosquitoes.¹¹³ Oddly, the perspective retained the distribution of the faculty chamber to the left of the sallyport, with the library to the right, although these already had been transposed at the president's request.¹¹⁴

In the third week of April, Lovett again traveled to Boston to authorize the final general plan and administration building designs.¹¹⁵ The major item of con-



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sideration, as working drawings and specifications were in preparation, was the choice of building materials. Cram, Goodhue and Ferguson had begun to assemble samples of brick and stone to study the combination of colors and textures. The architects continued to favor either a gray brick trimmed with white marble or pink brick with Istrian stone. Sample brick was acquired from Houston and Enfield, Pennsylvania, where the architects discovered a clay from which rose colored tile was made.¹¹⁶ Lovett's secretary, F. Carrington Weems, dispatched several reports to Boston on stone available in Texas, along with samples of granite and limestone.¹¹⁷

The architects agreed to have drawings and specifications for the administration building completed and in Lovett's possession by 20 May, so that construction bids could be solicited immediately.¹¹⁸ At the end of April an epidemic of scarlet fever broke out in Boston, and William Ward Watkin was taken ill. Watkin's absence from the project threatened to alter the architects' schedule and also raised the possibility that other men in the office might become sick.¹¹⁹ This did not occur, but Cram, Goodhue and Ferguson, after assessing their work load, advised Lovett that he should consider postponing the opening of the institute from the fall of 1911 until the fall of 1912. They estimated that even with the working drawings and specifications sent to him by 20 May, the process of awarding a contract and constructing the administration building could be expected to exhaust the fifteen-month interval between June 1910 and September 1911; furthermore this schedule would require that no mishap or delay set back the work at any stage. In addition none of the other projected buildings had even been fully worked out. Therefore the architects were apprehensive and felt it unlikely that the institute could be ready in 1911, even under the most favorable circumstances.¹²⁰

Despite the scarlet fever epidemic, plans and specifications for the administration building were completed on 19 May. "In order to get them off on time, we have

had to work as never before, sidetracking every other piece of work in the office and keeping the men at work nights for the space of nearly three weeks," the architects' correspondent reported to Lovett. "The actual expense to us in getting these plans off on the 20th amounts to over \$600 and as for the men, they are pretty thoroughly wrecked."¹²¹ On 21 May sets of drawings were mailed to Lovett for distribution to contractors for estimation. In June, the trustees awarded a contract for \$319,478 to William Miller and Sons Company of Pittsburgh, Pennsylvania to erect the administration building. The contract, signed on 2 July, stipulated completion by September 1911.¹²²

THE other buildings which Cram, Goodhue and Ferguson were commissioned to design for the opening of the institute did not prove as troublesome as the administration building. The decision to place the mechanical laboratory and power house in one building and to make it the central set-piece of a laboratory quadrangle was arrived at in Lovett's initial conversations with Cram in August 1909, as was the decision to punctuate this group with a tower, originally conceived as containing a water tank.¹²³ The president directed that the laboratory should be "of simple architectural treatment and construction."¹²⁴ The architects agreed with Lovett as to the propriety of this economy, assuring him that, "the material expense architecturally appears only in the case of the 'Administration Building,' and we shall use every means in our power to compensate for this expense by justifiable economies in the case of some of the other buildings. This would be particularly possible so far as the Laboratories and Power Plant are concerned."¹²⁵

By mid-February, Frank Ferguson had prepared a new scheme for the combined buildings. He eliminated the tower, as an underground water storage tank would prove more efficient and economical.¹²⁶ Weems, reporting to the president on Ferguson's revisions, commented that "the cloistered front facing south [i.e., the front elevation] should be very effective as well as



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useful," but lamented the disappearance of the tower: "I will confess to some disappointment on the score of the architectural effect which will be lost."¹²⁷

There is no subsequent reference to the loss of the tower in the existing correspondence, but Weems's sentiment must have been generally shared for the tower reappeared in the final design functionally justified as a smokestack.¹²⁸ After Cram, Goodhue and Ferguson completed the administration building plans and specifications, they proceeded immediately to work out the mechanical laboratory and power house. Lovett was informed by the architects' correspondent in late May: "Mr. Cram has already found time to block out, in quarter-scale form, the plans and elevations of this building, and the work should be continued and completed with very little delay."¹²⁹ Cram, Goodhue and Ferguson remained firmly committed to an economical resolution of the design, reassuring President Lovett that it was "...being worked out on the simplest possible lines. It would be almost out of the question to reduce this building in the point of elaboration."¹³⁰ The mechanical laboratory and power house plans and specifications were completed by 10 August and mailed to Houston on 15 August.¹³¹ In mid-September construction bids for the building were submitted. The lowest bidder was again William Miller and Sons Company. On 29 September, they signed a contract with the Rice Institute for \$182,430, \$16,570 less than the architects' estimate. Cram, Goodhue and Ferguson's correspondent gleefully apprised Lovett: "This ought to be as gratifying to you as it is to us. If we can keep on letting contracts for prices lower than we tell you will be possible, we ought to be quite popular with your trustees."¹³²

Two renderings, both of the front (south) elevation of this building, exist: one a pen and ink drawing by William Ward Watkin [28]; the other a wash perspective by Alexander E. Hoyle.¹³³ The mechanical laboratory was a long, narrow rectangular slab, its broad

dimension facing south at the head of the first cross-axis to penetrate the campus from Main Street Road. The ground floor was pulled back from the front facade to permit the insertion of a vaulted cloister. Cram, Goodhue and Ferguson's "basic" Rice style was evident in the minimal articulation of the horizontally extensive mural plane accomplished by applying shallow buttresses to mark off regular bays. A central salient (comprising the three bays to each side of the entry) was distinguished from end flanks; the buttresses died into a brick frieze spanning between bays in a series of corbel tables which were picked out by circular tile roundels. The buttresses on the end flanks splayed into the wall at the spring line of the second-story arched windows. Windows were omitted on the two end bays to emphasize solid closure. Marble plaques, spandrel panels and paired windows separated by marble shafts with simple cushion capitals occupied the central salient, in contrast to the less elaborate fenestration at either end of the building. Stone was used, though sparingly, to articulate horizontality. Broad eaves extended from a low-pitched hipped roof. The central archway was emphasized only through its slightly larger size, an extra band of molding and a stone Venetian balcony above. Behind the laboratory block, atop the machine shop link between the mechanical laboratory and the power house, was the smokestack tower—the campanile—which again exhibited the architects' predilection for defining form in terms of shallow, vertical planar relief. The only distinction between the two renderings is that Watkin's corresponded to the general plan by butting linking arcades perpendicularly into the end bays of the mechanical laboratory, whereas Hoyle's water color showed the arcade as continuing indefinitely beyond the borders of the picture. Watkin also illustrated a more developed landscape treatment, with another reflecting pool articulating the axial situation of the mechanical laboratory and its campanile. His flanking buildings, like those in the rendering of the court side of the administration building, demonstrated again the basic Rice style.

Neither of the two laboratory buildings intended to flank the mechanical laboratory was realized as part of the initial set of campus buildings. Cram, Goodhue and Ferguson completed sketches for a chemistry building and a physics and biology laboratory in early January 1912.¹³⁴ These were then circulated among the committee of "experts" advising President Lovett.¹³⁵ Lovett's decision to erect the transverse wings of the administration building and to provisionally accommodate the physics and biology laboratories there,¹³⁶ followed by the architects' suggestion that the chemistry laboratory also be housed temporarily in the other wing,¹³⁷ redirected this work. However, when the idea of appending these wings to the administration building was discarded, Lovett spoke of constructing only one laboratory building.¹³⁸ By the end of March, with the elevations and the general plan arrangement settled upon, Lovett advised the architects that a chemistry and biology laboratory would be built, with physics to be quartered temporarily in the mechanical laboratory and he promised to transmit the advisory committee's criticisms to them.¹³⁹ In early April, the president was asked which of the two laboratory buildings was to be built; in mid-May the architects reminded him that "...as for the Physics and Chemical Laboratories, we have at the present date received from you no information whatever as to what will be required."¹⁴⁰ Thereafter, the laboratory issue appears only once in the existing correspondence,¹⁴¹ and construction of an all-purpose laboratory was delayed until after the institute opened. None of the sketches for the various proposals survive, but it seems likely that they exemplified the astylar, buttressed pier system adopted for the mechanical laboratory.

APART from the administration building, the residence group seems to have presented the greatest difficulty owing, however, to matters of economy rather than composition. Having initially adopted a quadrangle system for student housing, the architects proceeded to plan for both sleeping quarters and dining and commons facilities.¹⁴² The president was intent on getting as many bedrooms as possible for the least expense and consequently the dormitory was accorded a very simple aspect. Stone was to be used sparingly; face brick only on the first floor, with the walls of the second and third stories rendered in rough-cast cement plaster. Interior finishes were to be functional and durable.¹⁴³ By March 1910 it had been decided that only one wing of the dormitory would be erected—paralleling the dining hall building and omitting the ell range connecting the sleeping and dining blocks.¹⁴⁴ When Lovett began to press for cost reductions the architects replied that the building was as simple as it could possibly be made and that any money-saving alterations would leave it "ruined architecturally."¹⁴⁵

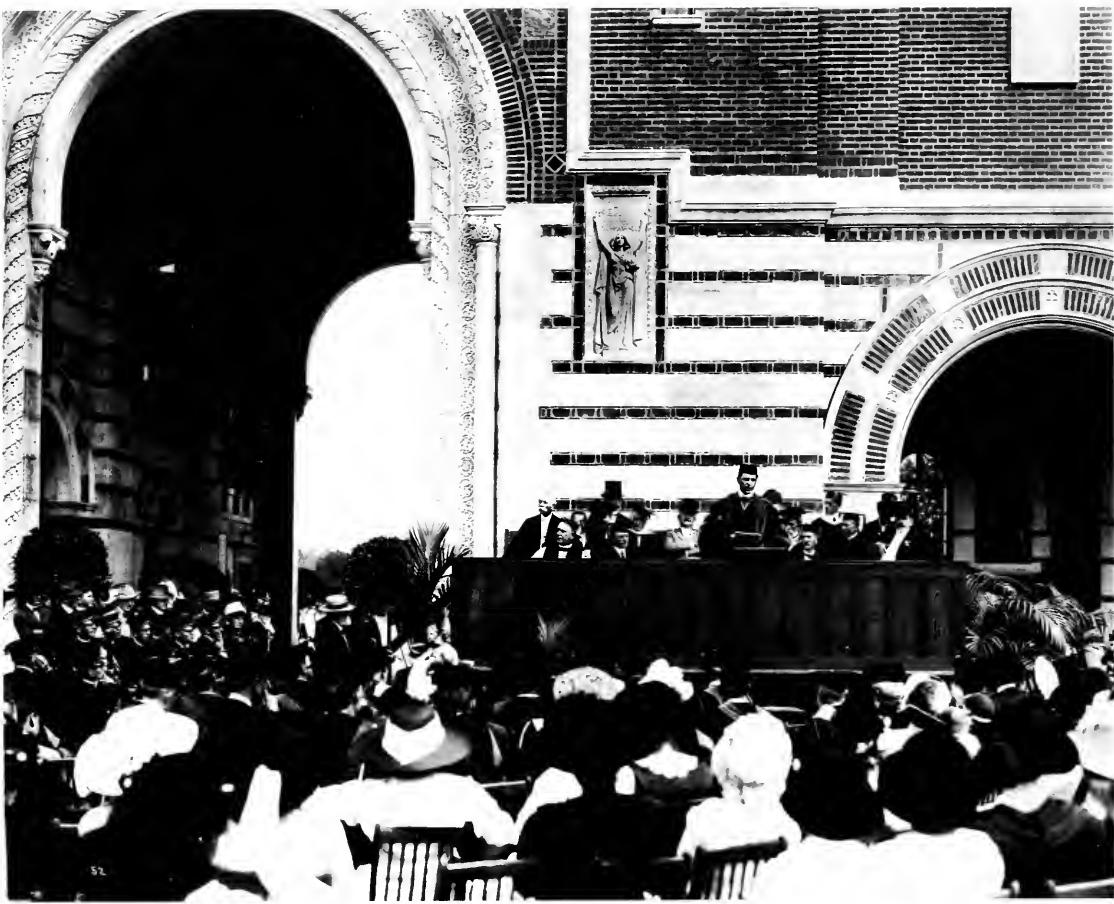
In an effort to hasten President Lovett into adopting a general plan the architects advised him that if the scheme they were proposing (the final one of 16 March 1910) was authorized, they could relocate the dormitory so that the "rich" arcade, necessarily of stone, would be superceded by one of rendered brick.¹⁴⁶ When the president acceded to the general plan of 16 March the architects assumed that he would authorize the reorientation of the dormitory.¹⁴⁷ However, Lovett

wrote to ask them, "without disturbing the original residential group or suggesting any modifications in its design, to consider the advisability of substituting in the first construction a smaller and subsequently cheaper building."¹⁴⁸ He immediately was counseled against this course. Instead, Cram, Goodhue and Ferguson proposed that the building be erected with the arcade reoriented south "towards the gardens," that it be of plastered brick and that the connecting ell be eliminated entirely from the plan.¹⁴⁹

In May, when the architects attempted to dissuade Lovett from opening the institute in 1911, they advanced the reason that no program had yet been settled upon for the dormitory. "Finally, the dormitory is still in an entirely nebulous state, and we have no instruction of any kind with regard to this."¹⁵⁰ No mention was made of the project again until the fall, after the construction contract for the mechanical laboratory and power house was let. In November the architects' correspondent notified Lovett that they were ready to proceed with the two laboratories, the president's and faculty houses, and the dormitory.¹⁵¹ But design work on the dormitory was not actively revived until 1911. The plans were revised, as the architects wished, in the summer of 1911 and in August the working drawings were completed and forwarded to Houston.¹⁵² Lovett approved the plans,¹⁵³ bids were solicited, and a contract awarded to James Stewart and Company of St. Louis in October 1911 for \$202,000.¹⁵⁴

Two renderings of this group survive: a photograph of a wash elevation of the south front of the dormitory and a wash perspective of both components of the residential group, the dormitory and the commons. The elevation, drawn by Godfrey K. Downer and sent to Lovett with the working drawings, was derived from the earlier project for a dormitory illustrated in the rendered detail perspective. The composition was simplified, stonework was kept to a minimum (although cloister columns were of stone and brick, not plastered), and the stone balcony was omitted. The same step-back profile was repeated, although the elements had been reversed. The dormitory was a long block with two bays projected forward. The projecting bays, or *risalits*, were linked at ground level by a cloister. Vertical rows of fenestration countered the otherwise unalloyed horizontality of the facade. Arched doors, singly and in groups, were the only ornamental features in the upper floors.

The perspective rendering [29] of December 1911 illustrated the relationship of both segments of the residential group. The double-height dining hall was articulated by six sets of tall, paired, arched windows set between thick pier buttresses. This portion of the building abutted a five-story tower, its surfaces animated by the now familiar theme of shallow planar recession. The dormitory and the dining hall were linked by another cloister, this time without stone decoration. To supplement the picturesque aspect of both buildings, differing roof forms were employed, all clad in tile. The perspective also advocated a heretofore unmentioned landscape treatment: hedge-lined paths bordered with a variety of palm trees.



30 President Edgar Odell Lovett addressing guests assembled for the opening of the Rice Institute, before the west elevation of the administration building, 12 October 1912. Ralph Adams Cram, in academic regalia and with head turned, is seated beneath the springing of the cloister arch.

As soon as Cram, Goodhue and Ferguson received the commission to design the initial campus buildings, they had outlined to the president their preferred method of managing the process of construction. An architect would be sent from Boston to superintend construction, remaining in Houston until all building was completed. The architects also advised that a clerk-of-the-works be hired to follow on-site work at all times of the day.¹⁵⁵ On 25 July 1910, A.C. Perry, who had served as clerk-of-the-works for Cram, Goodhue and Ferguson at West Point, arrived in Houston to begin the Rice work.¹⁵⁶ On 17 August, the supervising architect arrived—William Ward Watkin.¹⁵⁷ Cram, Goodhue and Ferguson opened a Houston branch under Watkin's direction, with offices on the eleventh floor of the Scanlan Building adjacent to those of Lovett and the institute.

The roads and building sites were laid out in the summer of 1910, under the direction of Wilmer Waldo. Watkin had sent Lovett a letter from Boston on 14 June containing instructions for locating the main axis.¹⁵⁸ On 20 July, Cram, Goodhue and Ferguson wired directions for siting the administration building and the mechanical laboratory and power house.¹⁵⁹ The construction of the administration building began in late August or early September. Construction progress photographs indicate that by the end of September the basement of the administration building had been excavated and site work on the mechanical laboratory and power house had begun.¹⁶⁰ Both buildings were constructed with exterior walls of load-bearing masonry. Steel framing was employed as the interior support system for the mechanical laboratory and power house, but on the administration building it was used only to frame the floors and the roof. Internal supports consisted of brick bearing walls and columns. The floor slabs and roofs of the two buildings were of reinforced concrete.¹⁶¹ By the end of 1910, the basement of the administration building was ceiled and the foundations of the mechanical laboratory underway.

In early January 1911 the first construction crisis occurred. Cram, Goodhue and Ferguson wrote Lovett that the bricks they were receiving in Houston from the Enfield Pottery and Tile Company were so deficient in quality that the company had been ordered to halt production.¹⁶² The delicate pink bricks, so admired in the spring,¹⁶³ upon arrival in Houston were discovered to be "so soft that, judging from the samples we have here in the office, they appear to be hardly more than what might be called 'sun-burned' brick. The color is orange and not pink, the heads are so roughly wire-cut that they cannot be used for laying up in Flemish bond, and the edges instead of being smooth, true and slightly rounded, are rough, serrated, and broken to the last degree."¹⁶⁴

The Pennsylvania tile company endeavored to improve the quality of the bricks, but they apparently could not satisfy Cram, Goodhue and Ferguson, for the contract was re-awarded to the Sherman Brady Brick Company of Houston, already under contract to provide common brick.¹⁶⁵ By late January the first-floor walls of marble and brick were several feet above the

cloister floor.¹⁶⁶ Although Tennessee marble was originally specified for the stonework, a flush-colored Ozark marble had been substituted for it before construction began.

CONSTRUCTION AND THE OPENING

Anticipating the ceremonial necessity of a cornerstone, President Lovett had had the architects prepare a design for it. The cornerstone [96], a four-foot, four-inch square of Ozark marble, was headed with a carved band bearing the shield of Texas and the newly designed shield of the Rice Institute,¹⁶⁷ with *Anno Domini MDCCCCXI* inscribed between them. Beneath this panel, a Greek passage from Eusebius of Caesarea was cut into the stone.¹⁶⁸ The architects informed Lovett that, as an ancient Greek letter face would be chronologically inappropriate, they had selected a Byzantine letter style from St. Luke of Stiris. To achieve typological congruence a Venetian letter face "which approximates the Greek in character" was employed for the date inscription.¹⁶⁹ On 2 March 1911 Lovett, the trustees of the Rice Institute and William Ward Watkin "laid" the three-and-one-quarter ton stone, sealing in it the requisite box of mementos [31].¹⁷⁰

By 4 May 1911, steelwork was rising above the mechanical laboratory and power plant foundations, and masons had begun to lay the Guastavino tile vaults ceiling the first floor of the administration building [35].¹⁷¹ A newspaper article of 14 May reported that inclement weather and delays in receiving materials had thrown construction off schedule and in consequence it seemed unlikely that the institute would open in the fall of 1911 as originally planned.¹⁷² A construction photograph of the administration building, taken from the nearly completed campanile of the mechanical laboratory in July 1911, reveals the swamp-like condition of the grounds when heavy rains fell. Excavated earth and stacks of building materials formed little outcroppings in the muddy, watery slough.¹⁷³ The engineer, Wilmer Waldo, protested that the county was allowing Harris Gully to be used to divert excess rainwater from north of the campus without increasing its carrying capacity,¹⁷⁴ thereby complicating his efforts to construct the tunnels which relayed water, electricity and steam heating from the power plant to the various institute buildings.

In late summer another difficulty with material supply arose involving the availability of Ozark marble. The marble, quarried in Oklahoma, apparently could not be found in quantities or quality sufficient to maintain construction progress. Reports in the Houston *Daily Post* indicate that stonework was intermittent through the fall because of the marble shortages.¹⁷⁵ At the end of October, William Miller and Sons Company located a quarry with a supply of high quality marble adequate to permit construction work on the administration building and the mechanical laboratory to resume a normal course.¹⁷⁶ Ornamental work, however, proceeded through the period of shortage. The capitals of the Texas pink granite cloister columns were hoisted atop their shafts and carved *in situ* in the summer and fall of 1911.¹⁷⁷ The sculptor was Oswald J. Lassig, an Austrian immigrant initially employed as a stonemason. Lassig's talent as a sculptor had been discovered by

31 James A. Baker laying the cornerstone of the administration building, 2 March 1911. To his left, in bowler hat and overcoat, is William Ward Watkin; to his right are Cesar M. Lombardi, Edgar Odell Lovett, James E. McAshan, William M. Rice, Jr., and Benjamin Botts Rice.



31

32 Construction of brick arches above the first floor, looking north toward the construction site of the mechanical laboratory and power house, 3 May 1911.



32

John A. Roberts, Miller and Sons' superintendent, who then had him execute the carving.¹⁷⁸

The campanile, one hundred forty feet high, reached its summit by the end of August.¹⁷⁹ At the beginning of November, ground was broken for the residential group.¹⁸⁰ In late December the first marble shafts of the colossal order dominating the west elevation of the administration building were hoisted into place [33] and work was underway on the stone moldings framing the sallyport.¹⁸¹ The cornerstone of the mechanical laboratory was dedicated on 5 January 1912;¹⁸² in April, the stone for the residential group was set.¹⁸³ But two weeks later the campus was again inundated by an overflow from Harris Gully.¹⁸⁴ Disturbed by the construction setbacks, the trustees called Watkin and representatives of William Miller and Sons Company and James Stewart and Company before them on 31 May 1912 to ascertain if the buildings would be ready by 23 September, when the institute was scheduled to open. Watkin was directed to report on a bi-weekly basis to the board on construction progress.¹⁸⁵ At the same meeting, the board signed a contract with William Miller and Sons Company for construction of three sets of gates: the main set at entrance number one and smaller sets at entrances number two and three, the two cross-axial streets entering the campus from Main Street Road. The contract was for \$16,075 and work was to be completed in three months. Although the gates depicted in the architects' initial set of drawings [36] were composed primarily of *cloisonné* stonework, the gates as built were almost entirely of brick, were simpler in form, and lacked much of the ornament originally intended.

CONSTRUCTION was hurried to completion for the first day of classes.¹⁸⁶ Illustrations documenting the opening ceremonies two weeks later, on 10 October 1912, betray the presence of construction equipment and supply dumps moved aside to permit the hasty landscaping of areas where the parade of dignitaries whom Lovett had invited to participate in the three-day

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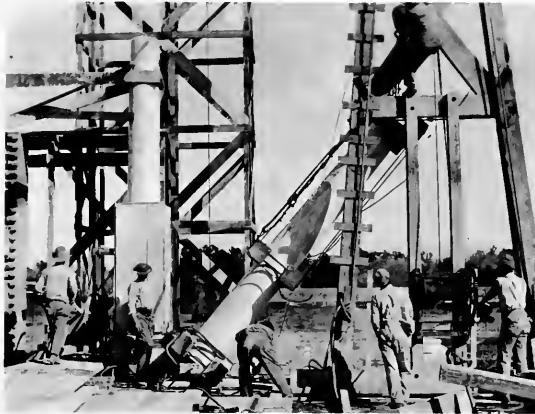
academic festival would pause [30]. The slight aura of unreality upon which Julian Huxley remarked is documented in contemporary images. This theme was exploited by the press, where coverage of the opening contrasted the sumptuous architecture of the campus, Lovett's ambitious academic program and the magnitude of the institute's endowment with the lurid details of William M. Rice's demise. The administration building, the mechanical laboratory and power house, and the residential group loomed surrealistically above the prairie. The system of walks and drives so complexly articulated in the general plan and finally rather schematically transferred to the site, was occasionally punctuated with clumps of shrubbery supplemented by several wagonloads of potted plants.¹⁸⁷ Photographs of the opening also disclose, for the first time, something of the character of the interiors of the buildings. What is surprising, in every instance, is the concerted simplicity of finish and detail evident in all the buildings.

In the administration building [37-49], the ground floor vestibules, the library, study hall, faculty chamber, president's office and a number of classrooms were recorded. The long thin building was organized around four sets of stairs. The ground floor contained administrative offices in the south wing and a large study hall north of the sallyport. Groin vaults, articulating each structural bay, spatially defined the study hall. Its furniture was sturdy; its equipment, serviceable.

The most dramatic sequence of spaces was that of the vestibules at entrances number two and three, flanking the sallyport.¹⁸⁸ The exterior bay, modulating the transition from cloister to sallyport, was sealed on the campus side by a stone-lined exedra rising into a half-dome. The bay was enclosed beneath a domical vault, as was the vestibule just inside. Stone moldings, a high marble dado and elaborately patterned tile and marble paving imbued this tiny *salle de pas perdus* with the lavish surface treatment that the exteriors would lead one to expect. The paneled door leading into the study room contained an inset carved plaque and a bronze door

33 Construction progress view of
colossal columns being hoisted into
place on the second floor, 26 December
1911.

34 Construction progress view looking
north across third floor, 25 March 1912.



33



34

knob backed by a plate carrying twined peacocks [97]. The stair to the second floor returned around the inside of a story-and-one-half exedra to arrive at the vestibule outside the second-floor library. Polychrome paving was again employed, but a more modest use of marble was apparent in the dado strip. The inner balustrade of the stairs was patterned after a Venetian example used elsewhere on campus; the outer rail was a convex molded band which returned into a concave void in the wall along the top of the dado and curved continuously downward.

The library (a temporary expedient for thirty-seven years) extended between stairs number two and one. A stone fireplace was set opposite the main entrance from stair number two. On both sides of the room French doors opened to the outside—to balconies overlooking the campus to the west and one of the loggias to the east [48]. Bookshelves were positioned along the column lines, with reading areas situated in the interstitial bays. Classrooms displayed the basic Rice interior style: white-washed plaster surfaces, marble base moldings and composition floors.

The president's office, at the top of stairway number two, was situated in the fourth-floor tower above the sallyport. This space received more elaboration than any other in the administration building, primarily through the addition of decorative detail to the simply plastered interior shell. Crisply modeled egg and dart molding, another marble fireplace and marble door-cases, wood wainscoting and a patterned tile floor supplemented standardized features. Bronze plates in the ceiling concealed extract ducts for exhausting the heat which would accumulate in the fourth-floor office. As with interior finishes, the oak furniture comprised embellished variants of standard provision.

The administration building's grand room was the double-volume faculty chamber [49], positioned opposite the library between stairs number three and four. Seating in collegiate choir arrangement ran the

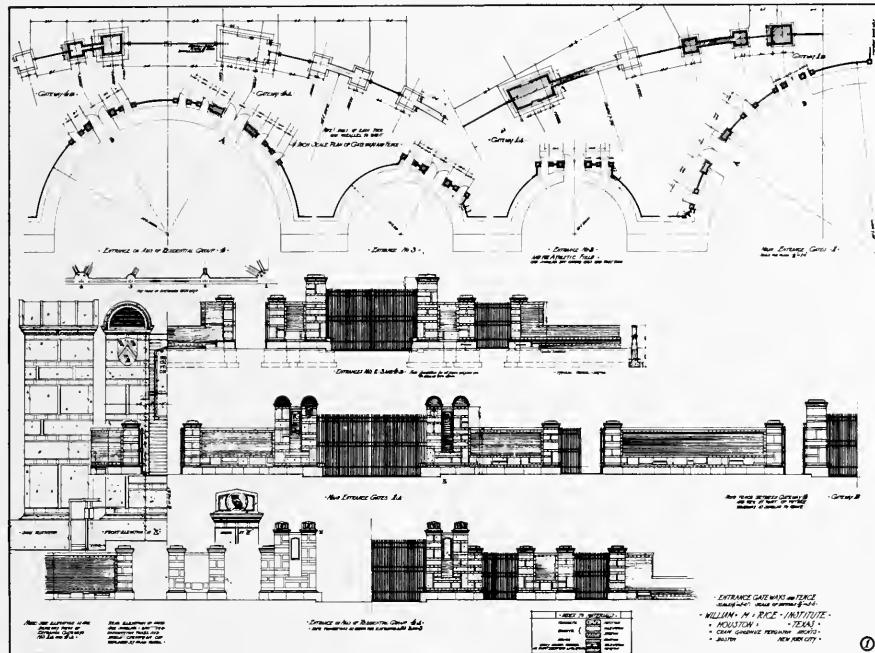
length of the chamber. Above the main entrance was an arched gallery; at the opposite end of the room lay a dais, set off by two one-story enclosed passages.¹⁸⁹ Wood paneling lined the lower reaches of the room, but above the fenestrated upper half, concrete-cased steel beams and joists were left exposed. Like the library, the faculty chamber also opened onto one of the high, shallow loggias facing Main Street Road.

The entrance to the mechanical laboratory [50, 51] conveyed an impression of marbled and vaulted splendor until one passed beyond the vestibule. There again, the same utilitarian aesthetic evident in the administration building prevailed. But unlike the administration building, which was organized around points of vertical access, distribution in the mechanical laboratory operated from a central collector. At either end of the building on both floors, larger rooms four-bays-long and running the depth of the building were appointed as laboratory or drafting spaces. Above the entry vestibule, opening to the second-floor stair hall, was a barrel vaulted lecture room with classrooms to either side. Flanking the main entrance on the ground floor were a staff room, lockers and rest rooms. Behind the mechanical laboratory was the power house [52, 53], from which all services for the institute emanated.

Given the variety of functions it was to contain, the residential group [54-57] permitted a wide latitude of treatment. The dormitory, the southernmost building in the group (hence South Hall, now part of Will Rice College), had one- and two-man rooms opening off a lateral corridor running the length of the building. Articulating the main stair was a five-story tower housing both rest rooms and, on the second and third floors, "debating rooms." On the fifth floor an open-air belvedere and a large terrace permitted access to unrestricted breezes. A cloister along the south face of the dormitory [56] penetrated the tower bay as a "slype," pivoted around the central stair and re-emerged from the building as another cloister linking the men's sleeping quarters with the commons building

35 Administration building
Construction view, detail of cloister
looking north, c. 1911.





(now part of Baker College). From this cloister, circulation in the commons was distributed upward and to either side. Situated in an independently expressed volume was the dining room, a two-story high space covered by an exposed pine-truss ceiling [57]. A one-story link housing the serving line (its roof supported by exposed steel trusses) connected the dining room with the kitchen, a separate two-story building.

On the opposite end of the main entry, a lateral hall led to the commons room, which was articulated on the exterior by French doors with pointed arched transoms. Above this room a second story contained bedroom and study suites where unmarried faculty members and graduate fellows were to be accommodated. This arrangement prevailed on the third and fourth floors of the faculty tower, which rose above the staircase to a fifth-floor loggia and terrace, somewhat more commodious than its counterpart above South Hall. The necessity of thorough ventilation was registered in the residential group with the exploitation of multiple exposures for major rooms, the integration of exterior and interior through the interpenetration of cloisters and buildings, and the creation of loggias and roof terraces.

One feature of the general plan which received very little mention in the correspondence was the landscaping. A newspaper progress report from the spring of 1912 contained the information that the main drive-

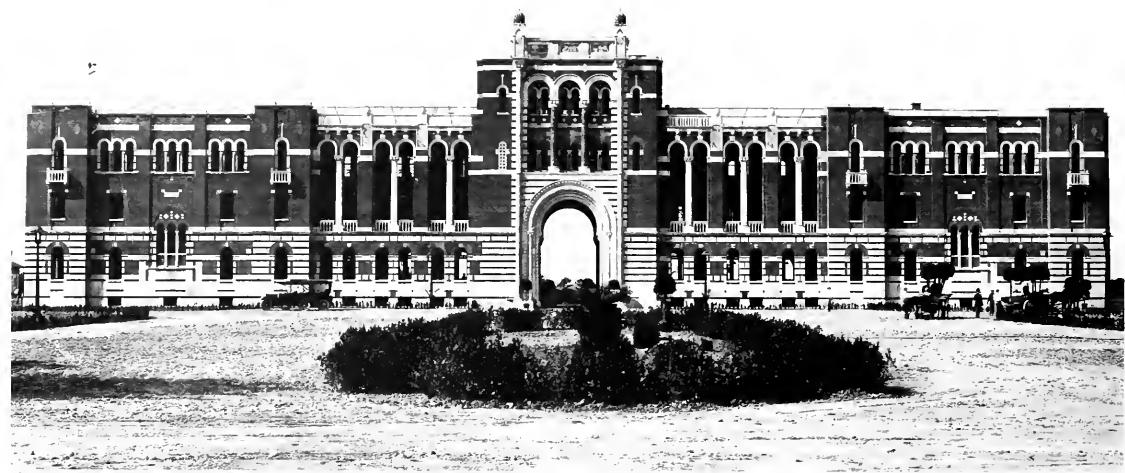
ways had been surfaced with gravel and granite chips and that "...the planting of double rows of oaks, elms and cypresses along these drives and the assemblage of hedges, shrubs and flowers within the gardens and courts of the present groups will subsequently impress even the casual visitor both with the magnitude and the beauty of the general architectural plan."¹⁹⁰ The Houston nurseryman, Edward Teas, was responsible for actually planting the *allees* of live oaks and the ranks of privet hedges with which Cram, Goodhue and Ferguson defined exterior space on the institute grounds.¹⁹¹

THE Rice Institute project attracted attention not only in Houston, but across a wider field. Cram, Goodhue and Ferguson were one of the best known architectural firms in the United States when they received the institute commission, and their work was frequently published in the professional press. With the Rice Institute Cram's theoretical excursion—and its novel stylistic ramifications—provided further inducement for coverage by most of the major architectural periodicals of the time.

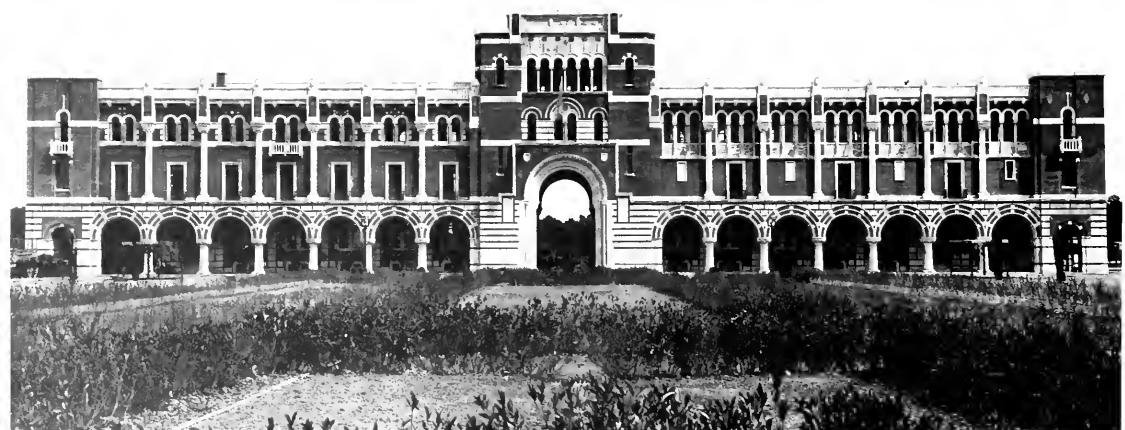
Houston's own short-lived architectural journal, the *Southern Architectural Review*, devoted an entire issue to the planning of the institute in November 1910. William Ward Watkin wrote a long, explanatory article to accompany illustrations of the general plan and proposed buildings.¹⁹² Montgomery Schuyler's presentation of the work of Cram, Goodhue and Ferguson in the

37 Administration building. East elevation and forecourt, 1912

38 West elevation and campus. 1912

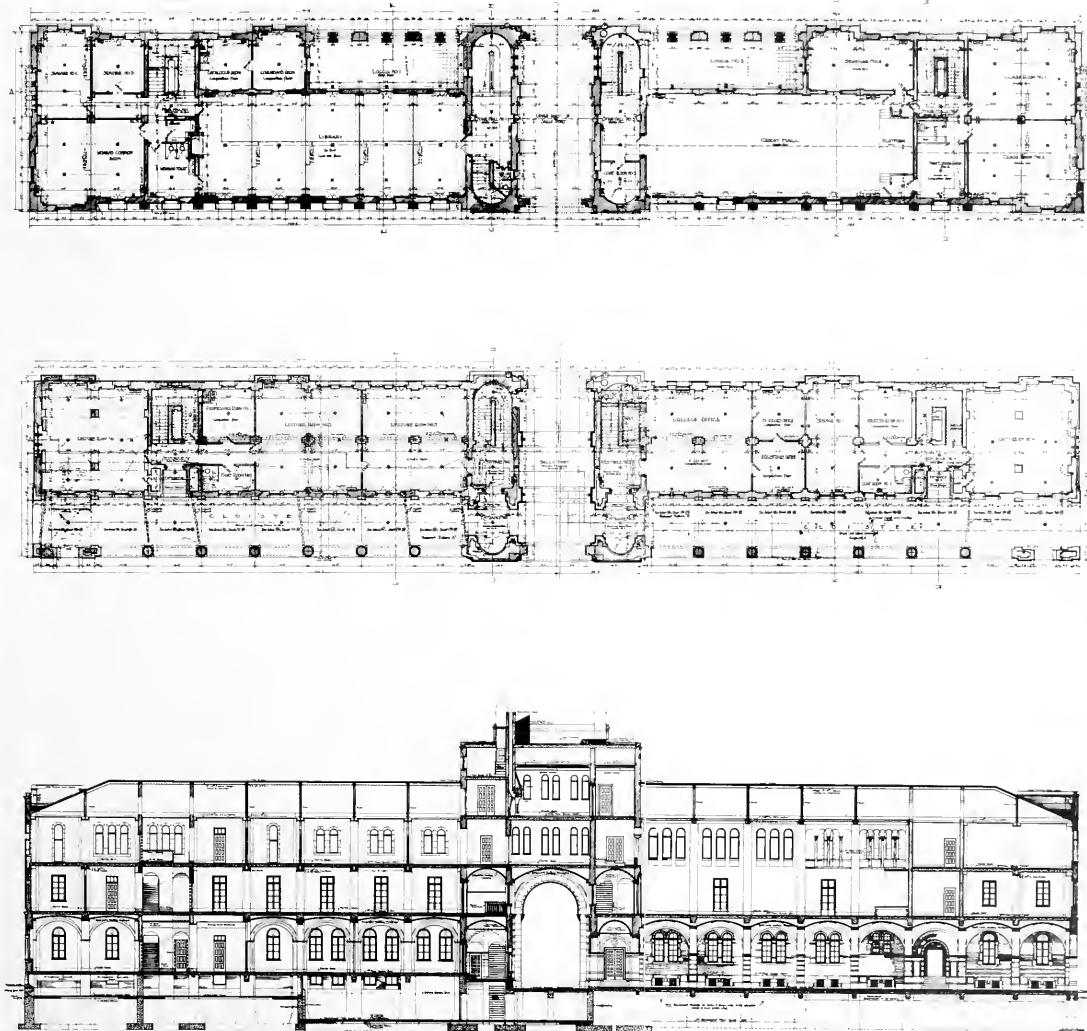


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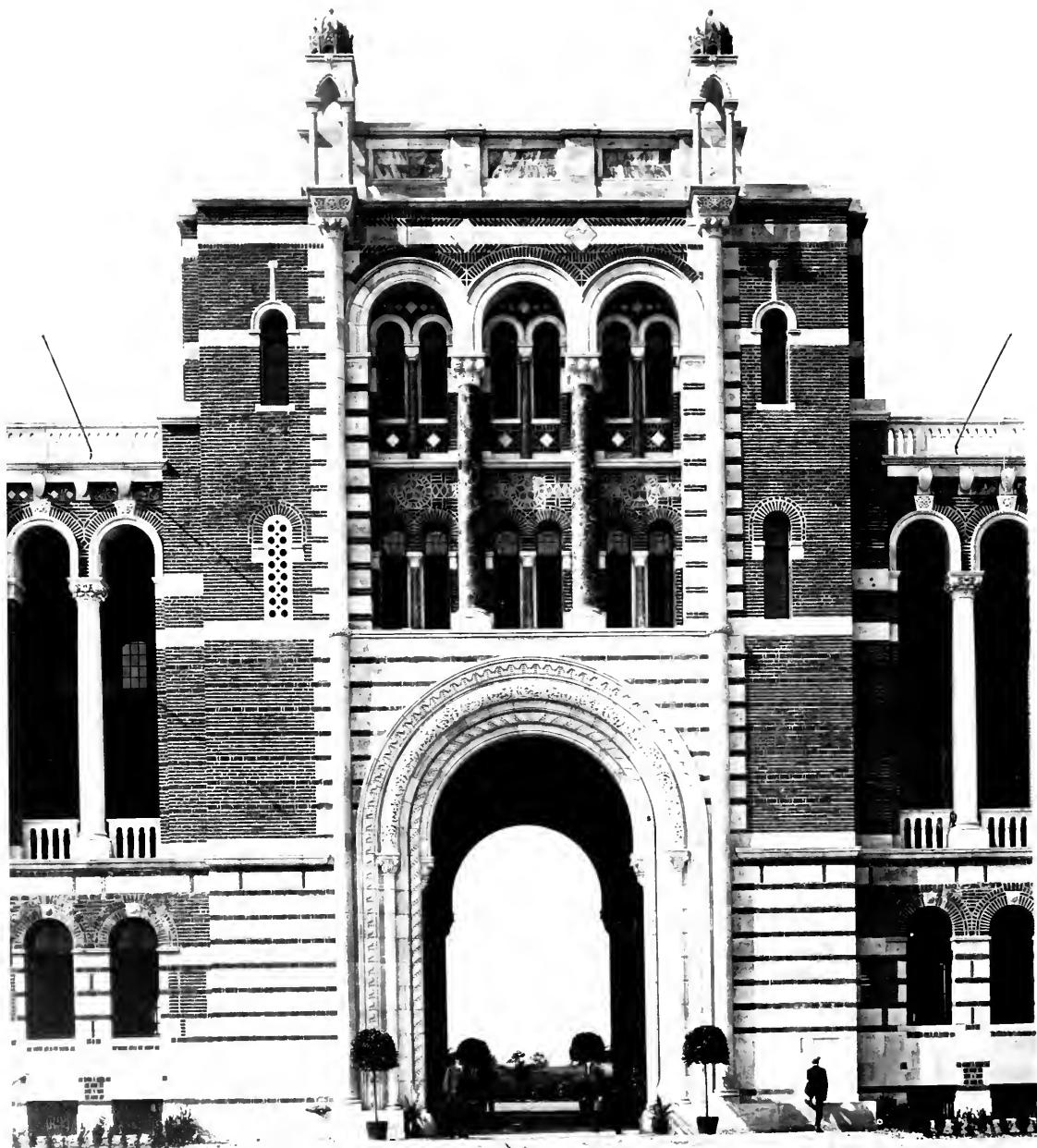


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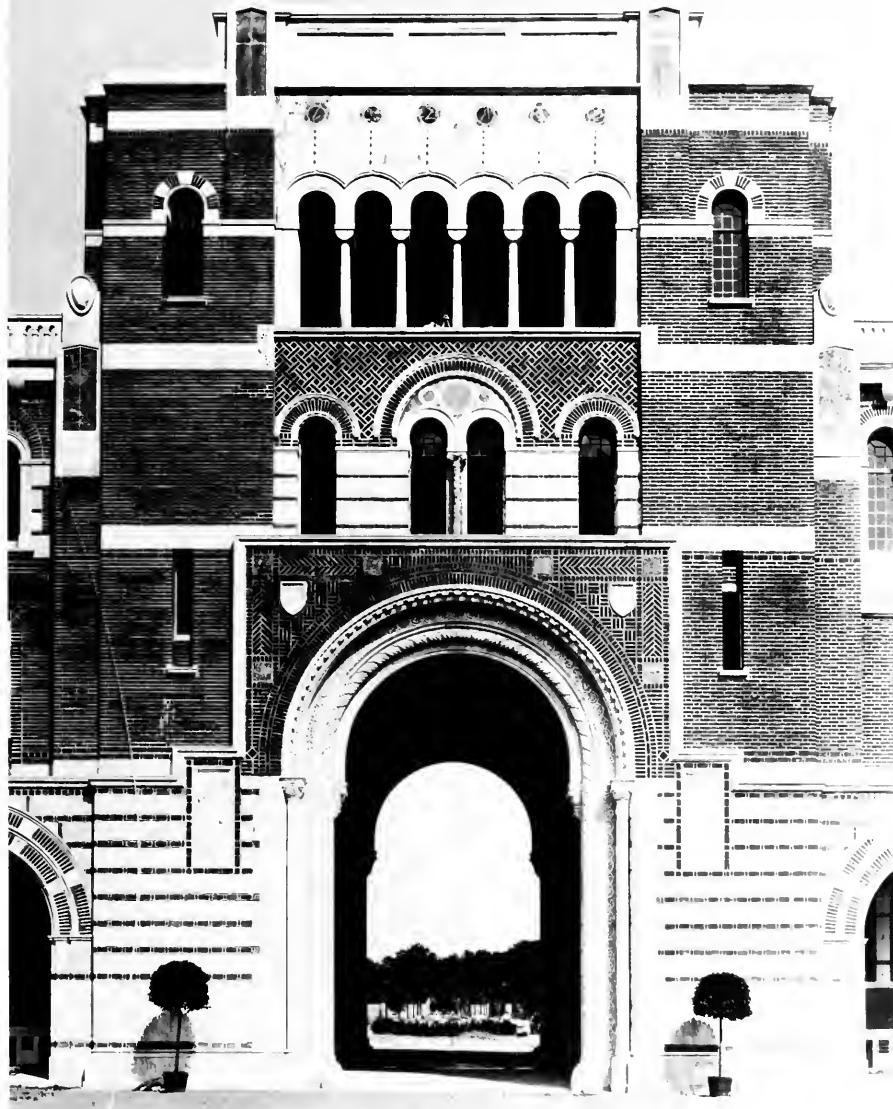
39 Composite second floor plan (top),
composite first floor plan (middle),
composite longitudinal section
(bottom), from the construction
drawings, 20 May 1910.



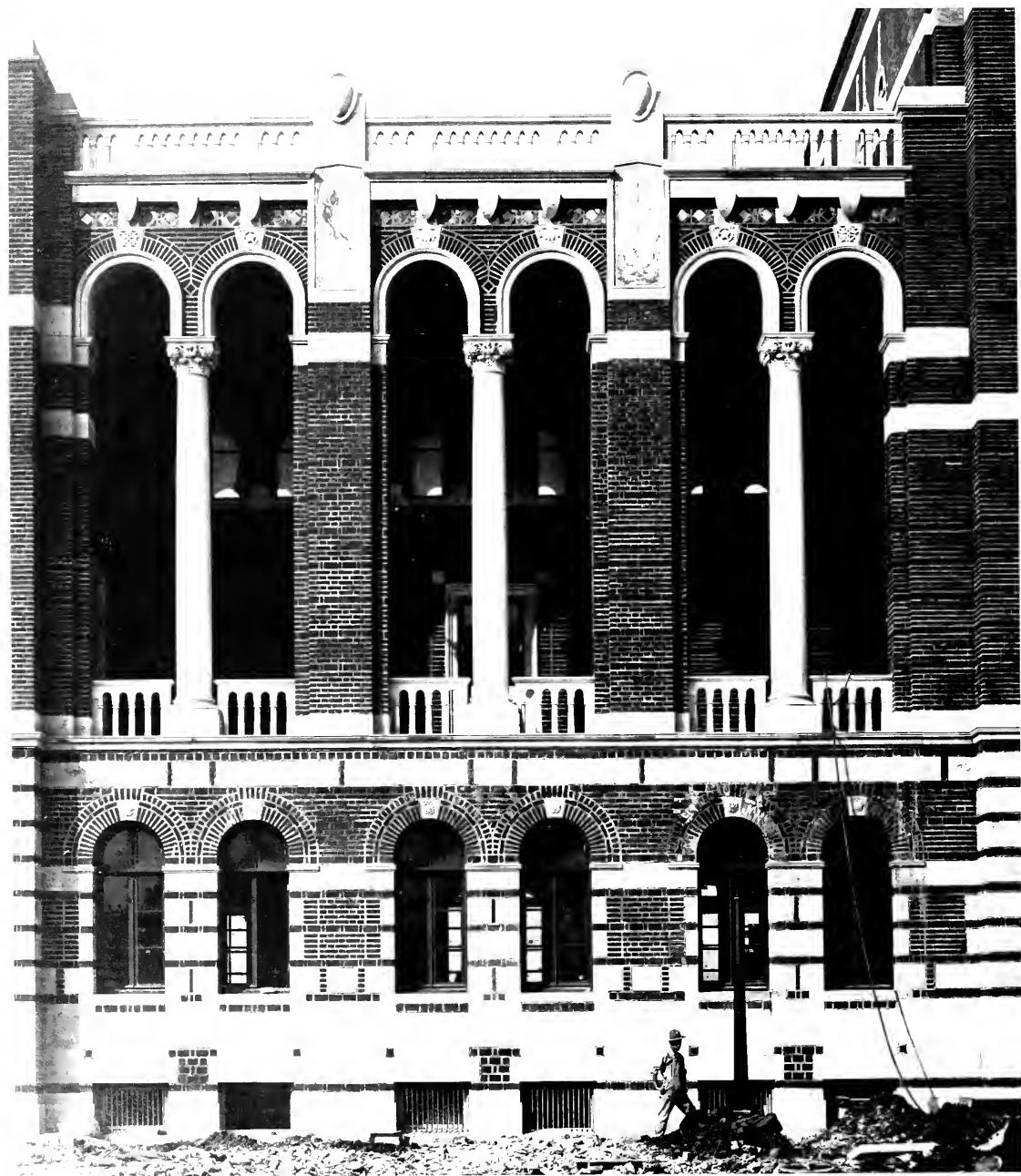
40 Administration building. East elevation, detail of sallyport, 1912.



41 West elevation, detail of sallyport, 1912.



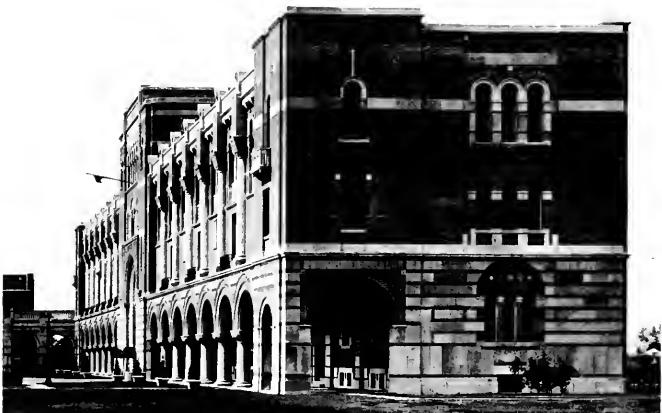
42 Administration building East elevation, detail of south loggia, 1912.



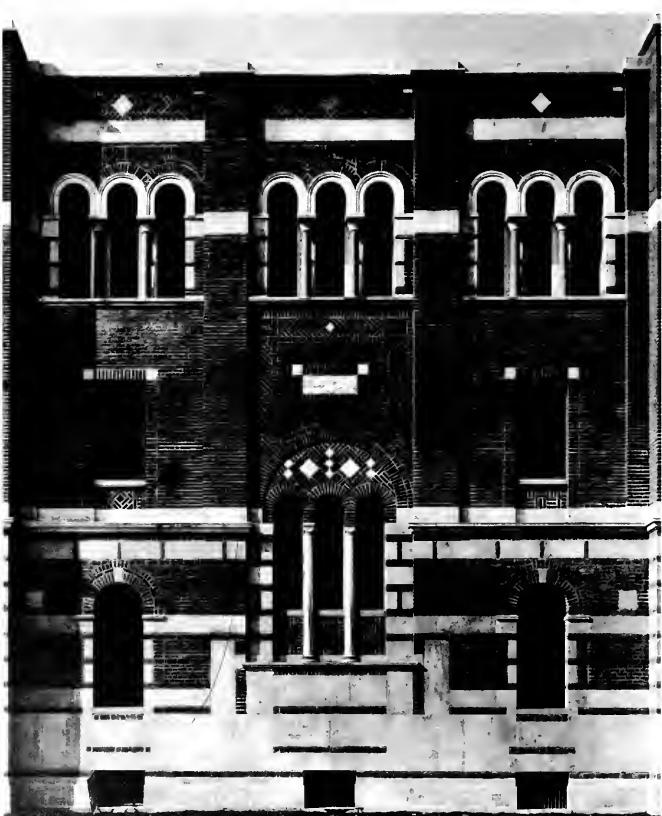
43. West elevation, detail of south cloister, 1912.



44 Administration building. Perspective view of south (right) and west elevations, c. 1913
45 East elevation, detail of south wing, 1912.



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Architectural Record two months later also mentioned the Houston project, although he apparently saw only Goodhue's proposal and not those produced in the Boston office.¹⁹³ In May 1912 the *Journal of the Royal Institute of British Architects* published an essay by Cram entitled "Recent University Architecture in the United States." In it, the Boston architect made a terse and curious reference to his Houston project, "...in Texas my own firm is doing a 'deed without name' that you must judge for yourselves and justify, if you can, as we do ourselves."¹⁹⁴ Following the opening, Cram, Goodhue and Ferguson's work at the Rice Institute was published in the *American Architect* (New York), the *Brickbuilder* (Boston, predecessor of the *Architectural Forum*), the *Western Architect* (Minneapolis) and the *Southern Architect and Building News* (Atlanta).¹⁹⁵

The *Western Architect*'s notice was largely descriptive.¹⁹⁶ The editors of *The American Architect* ventured commendation. Their interpretation of the spirit of Gothic builders who evinced the "power of selection and discrimination" through "the adaptation of the best that existed and the elimination of elements whose introduction would have marred the general result," fortuitously coincided with Cram's own eclectic procedure, which in Houston had "...romantically and picturesquely evolved a result that will mark an era in our architectural style and is possibly a long step towards the development of a characteristic purely American in its presentation." The use of color "...almost barbaric in the strength of its application," was especially remarked. The editors also alluded to the unconventional aspect of the design (by implication, the administration building) in concluding that it constituted a "constructive work of architecture that doubtless will be compelled to submit to the stress of much criticism as has every innovation in art, before it safely and surely rests on the firm basis of universal approval—a result that, in our opinion, is inevitable."¹⁹⁷

Writing under the pseudonym of Franz Winkler, Montgomery Schuyler ventured a lengthy and approving criticism of the new architecture at the Rice Institute in Cram's hometown journal, the *Brickbuilder*. Noting the "sub-tropical suggestion" conveyed in the amalgamation of Mediterranean sources, he was somewhat unsure as to the stylistic congruence of Cram's administration building and Goodhue's auditorium; "divided counsels," he phrased it.¹⁹⁸ Schuyler's enthusiasm for Cram's work was based in part on their shared conviction that architecture was an ethical endeavor, and that the Gothic represented the culmination of architectural achievement. While their paths to this conclusion were in some respects divergent, their similar orientation permitted Schuyler to discern a vitality in the Rice work which he missed in much contemporary neoclassic architecture.¹⁹⁹

Of the administration building, he wrote:

All beholders will promptly agree upon two points in the design of the one distinctly "architecturesque" building thus far erected in pursuance of the scheme for the Rice Institute. One, that it is a highly interesting building. The other is, that it is not at all "the regular thing" in collegiate architecture. One notes with pleasure in each of the fronts that the ar-

46 *Detail of cloister looking south, 1912.*



47. Administration building. Detail of sallyport, looking east toward the main entrance, 1912



chitecture is first of all expressive, and that there is no concealment of the actual facts of and real requirements in deference to a preconceived "elevation," but contrariwise, an exposition of these, and afterwards a successful attempt to bring them into an orderly relation which shall give the two sides by no means necessarily an exact and formal symmetry, but an effective balance, and enable the composition of the "features" into a countenance, and the bringing of unity into variety by means of a predominant feature.²⁰⁰

Even the ornament gladdened Schuyler; he particularly admired the tendrilled rolled soffits of the sallyport, which he interpreted as a covert appreciation of H. H. Richardson's characteristic detail.

The favorable response which Cram, Goodhue and Ferguson's achievements evoked from architectural critics was matched by that of the institute's officials. On at least two occasions, Edgar Odell Lovett recommended the firm's services for architectural work. Writing in 1944 of his original plans for the Rice Institute, the president recalled that to carry out the design of the university's buildings required "the highest type of constructive imagination at work among living architects. It was a long and laborious search, but we found Ralph Adams Cram, of Messrs. Cram, Goodhue and Ferguson...and ere long, we were very happy with that choice."²⁰¹

WATKIN'S list of sources fortunately permits an enumeration of many (though probably not all) of Cram's specific architectural borrowings for the first institute buildings. Actual details from the St. Luke of Stiris monograph can be isolated in both the administration building and the mechanical laboratory and power house. The spiraling tendrils framing floral, avian and human creatures on the flat inner band of the west-facing sallyport arch [58] seem to follow a similar device on the lintel of a bema screen depicted in plate twenty-three of the monograph [59]. The stilted triple arch apertures on the east and west faces of the mechanical laboratory machine shop appear to have been transcribed directly from figure seventy-seven of the monograph, depicting an exo-narthex attached to the Katholikon. More generalized similarities include the use of a relieving arch to enclose grouped, arched windows [104]—as on a number of third-floor windows on both the campus and street elevations of the administration building—and the proportions and banded wall treatment of the Katholikon narthex, which is comparable to the administration building's vaulted cloister.

Details from other sources to which Watkin alluded may also be discerned. The slender colonnettes flanking the central portion of the sallyport block on the east face of the administration building closely resemble colonnettes serving the same function at the church of S. Giacomo Maggiore in Bologna.²⁰² Like the administration building colonnettes, the corresponding Bolognese examples are overlapped by horizontal bands, tying them to the facade. The eleventh-century tower of San Francesco in Ravenna [27] so strikingly resembles the manipulation of openings at the top of the campanile that the coincidence is unlikely to have been accidental.²⁰³ The astylar buttressed pier system employed by the architects on the mechanical



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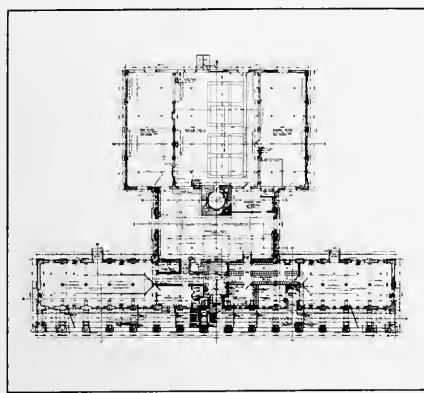


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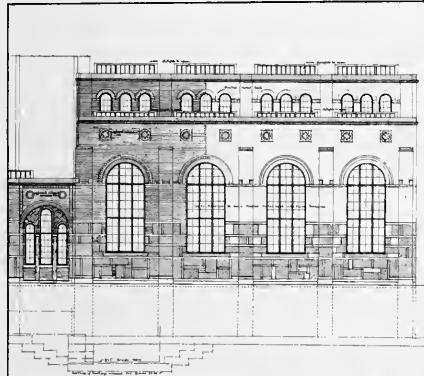
50 *Mechanical laboratory and power house. Detail of south elevation and campanile, c. 1929.*



51 First floor plan, from the construction drawings, 3 August 1910.
 52 East elevation of power house, from the construction drawings, 3 August 1910.
 53 Interior view of power house, 1912.



51



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laboratory and power house and on the commons perhaps had its genesis in the church of S. Stefano in Bologna.²⁰⁴ The treatment of stone balusters and indeed most of the stone balconies on the administration building were transcribed from George Edmund Street's popular nineteenth-century work on Italian architecture, *Brick and Marble of the Middle Ages* [108].²⁰⁵

One of the most arresting features of the administration building, the column screen on the west elevation, is not alluded to, although it was obviously considered of great importance by the architects. As unlikely as it seems, this device probably was appropriated from the monuments of ancient Rome, for its treatment—flanking the sallyport arch—strongly suggests a Roman triumphal or commemorative arch, expanded to the scale of a building. While Cram might have been expected to consider such direct borrowing from a “pagan” source repugnant, free-standing columns are not characteristic of the late Roman architecture of Italy nor do they appear, at this scale, in late medieval Italian architecture.²⁰⁶

The Genovese sources for the residential group were probably more diffuse, as Watkin cited no individual examples. The amalgamation of arcaded cloisters, stucco surfaces, deep-set openings, overhanging eaves and prominent, open-air towers lent the components of the residential group a quintessentially picturesque aspect. The idiom of nineteenth-century Romantic architecture might well have been revived for South Hall and the commons. In fact, certain elements of each distinctly resembled aspects of the several buildings which Carrere and Hastings had designed in St. Augustine, Florida in the 1880s for Henry M. Flagler.²⁰⁷ The detailing of the cloister on South Hall mirrored the patio arcades of the Hotel Ponce de Leon while the massing and distribution of openings of the parish houses of both Grace Methodist Church and the Flagler Memorial Church are recalled in the residential group.

Yet, as a comparison of the campus buildings with their historic models demonstrates, received detail was transformed in reapplication. Not even for the sake of antique effect would Cram, Goodhue and Ferguson permit a single brick course to waver. Rationalist planning, supplementing ordered composition, bespoke in their architecture the deep imprint of academic method. Cram had, on several occasions, publicly opposed the importation of Beaux-Arts classicism to the United States, when the frothy neo-Baroque of the turn of the century was enjoying popularity among American designers. But he was careful to distinguish between a Beaux-Arts classic style and Beaux-Arts principles of planning and composition: “the great principles of design that underlie modern architecture in France” as he once referred to them. “The principles ...themselves we are all anxious to adopt,” Cram wrote, pronouncing them “exactly as operative in the planning of a Gothic cathedral as they are in the laying out of a scheme of a palace for the President of the French Republic. These principles are independent of style.”²⁰⁸

Cram's reliance on the precepts of rational planning is disclosed in both the grouping and internal arrange-

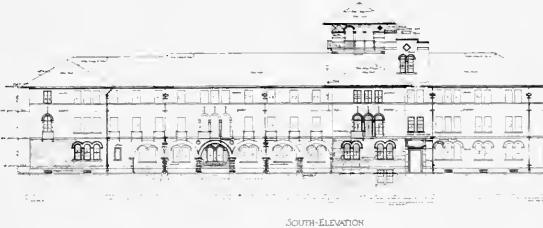
ROMANTIC MOTIVES,
RATIONAL PLANS

54 Residential group for men. South Hall (left) and the Institute Commons (right). View from the administration building, 1912.

55 South Hall (left). South elevation and first floor plan from the construction drawings, August 1911. Institute Commons (right). South elevation and first floor plan, from the construction drawings, August 1911.



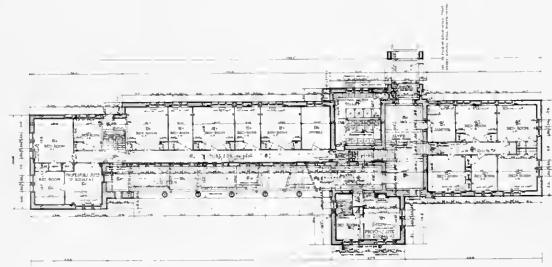
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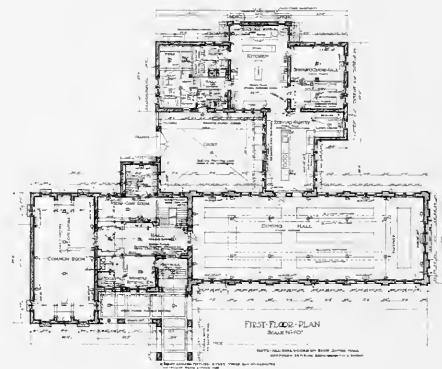
SOUTH ELEVATION
SCALE 1/4" = 10' 0"



SOUTH ELEVATION
SCALE 1/4" = 10' 0"



FIRST FLOOR PLAN
SCALE 1/4" = 10' 0"



FIRST FLOOR PLAN
SCALE 1/4" = 10' 0"

56. *South Hall, Detail of cloister, looking east, 1912.*

57. *Institute Commons. View of dining room looking west, 1912.*

ment of buildings. The division of the campus into units identified by function and discipline, the creation of architecturally coherent exterior spaces and the articulation of the circulation network as a unifying system were all manifestations of what he had called "the great principles." The buildings themselves demonstrated a like degree of systematic organization. Interior space was distributed within repetitive structural bays. Circulation, both of people and air, functioned as the main determinant of building form. This conceptual predisposition also affected the composition of the building elevations, for Cram's syllogistically deduced style was applied with similarly rational spirit. It was not that, in contradistinction to the sources of details, the elevations displayed a T-square and drafting board precision, but that the decorative elements themselves were so obviously premeditated and self-consciously expressive. Structure was symbolically articulated, but structure was also transformed into symbol, especially on the administration building. The great men, archetypal students and allegorical figures sculpturally depicted on the exterior of the administration building operated at a level of explicit symbolism; the richly eclectic assemblage of Roman triumphal columns, Byzantine masonry, Romanesque arches and Venetian balusters functioned implicitly to convert the building into a rhetorical vehicle embodying the attributes of piety, learning and power associated with the Helleno-Roman and Italo-Byzantine spheres. Architecture was used to transform human accommodation into an object of cultural demonstration, advertising the Rice Institute's situation with these imported traditions.

The architects' rational methods (in contrast to their romantic motives) entailed detail transmission of another kind. Elements from certain previous Cram, Goodhue and Ferguson projects, not unexpectedly, surfaced in the Rice Institute designs. As noted, the concept of the campus opening out into a park appeared to be derived from Cram's general plan for Princeton University. The fascination with diagonal alignment which informed the Boston office's earliest proposals for the Rice Institute appeared in their general plan for the University of Richmond in Richmond, Virginia, a commission received in the spring of 1910 while the administration building was being designed.²⁰⁹ There, diagonals were used much more freely to relate asymmetrically massed buildings scattered over a hilly site.

The attenuated proportions of the Rice buildings, although occasioned by specific requirements of function and climate, had been employed in other quite different university projects, such as the Graduate College at Princeton, a much more picturesquely massed building than any of those on the Rice campus. The most striking instance of borrowing from earlier work was in the configuration of the loggias on the administration building. The long, shallow, double-height space inserted behind the facade seemed to be derived from Fletcher Hall at Sweet Briar, itself influenced by Thomas Jefferson's architectural work of the late eighteenth and early nineteenth centuries. The arrangement of a high, columned loggia enclosed by solid bays above a ground floor arcade, which Cram, Goodhue and Ferguson employed at Sweet Briar, had been used

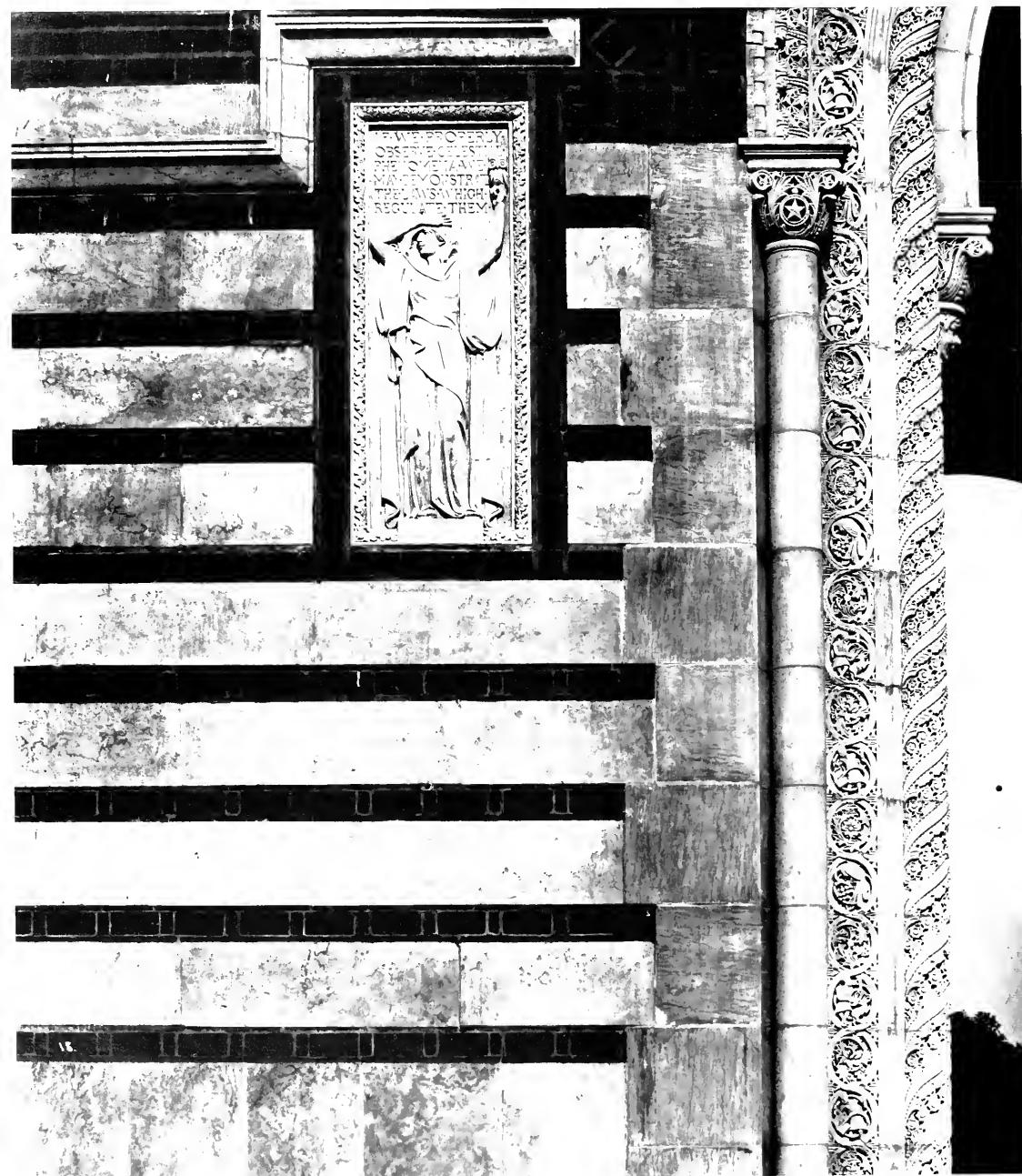


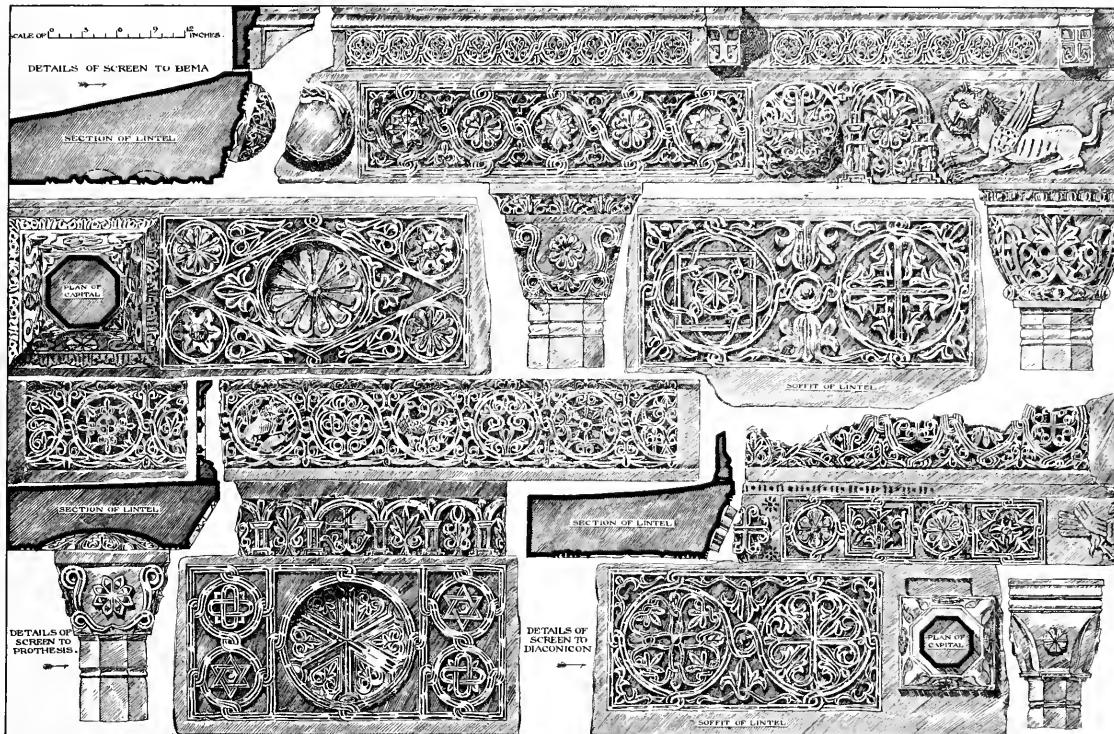
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58 Administration building West elevation, detail of sallyport and the relief sculpture, Science, 1912.





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at Bremo plantation on a house which was then believed to have been designed by Jefferson. On the Rice administration building, the ground floor arcade was ultimately redirected to the other side of the building,²¹⁰ but the provenance of the loggia is clear.²¹¹

The basic architectural style which Cram, Goodhue and Ferguson employed for the other campus buildings (and symbolically encrusted for the administration building) is of interest primarily as an exposition of compositional method. The articulation of vertically continuous strips buttressing a planar wall was perhaps an extrapolation from those principles of Gothic construction which Cram was anxious to incorporate into the architectural manner he devised for the Rice Institute commission. The elaboration of this feature as a general composition^a method could also claim precedent in the brick architecture of northern Italy. Throughout, Cram's resort to planar composition suggested the superiority of massing over decoration as an architectural value. The contrast between the administration building and the other campus structures underscored this predilection. Viewed in isolation, there are numerous examples of "set-back" detailing on the initial campus buildings which forecast the blocky, staggered massing profiles which Goodhue did

much to popularize in the 1920s, and which Cram himself was to employ in several later projects.²¹²



THE commencement of formal instruction at Rice marked only the initial phase of the institute's building program. Following the opening of classes, the first of the two deferred laboratories was begun, providing Cram with another opportunity to demonstrate his eclectic ingenuity. Planning for the physics building must have started immediately after the opening of the institute, as an announcement in the *Manufacturers Record* of November 1912 stated that a physics laboratory at the Rice Institute, for which drawings had not been begun, was contemplated.²¹³ Bids were solicited in April 1913, the general contract was awarded in early July to James Stewart and Company for \$285,903, and construction was begun in August.²¹⁴

The physics building [60-68] conformed to the general plan in arrangement and was in fact an extrapolation of one of the originally proposed transverse "wings" of the administration building, pulled apart and shaped into a separate building. It consisted of two parts: a long thin block facing the campus and a rear lecture amphitheater parallel to the main block and joined to it by an arcade. The plan [62] reflected the building's temporary division among the departments of physics, chemistry and biology. Three doors opened from the cloister, a centrally located stair directed circulation upward or out a rear entrance. On the second floor, classrooms, laboratories and offices were aligned along a cross-corridor. The easternmost entrance penetrated the main block and led to the connecting rear arcade. As executed, this arcade was actually more of a loggia since a slender one-story link enclosed it along one side. The space in this link was designated an apparatus museum; consequently, the loggia became the museum cloister [67].²¹⁵ This cloister directed circulation into the four-hundred-seat amphitheater occupying most of the rear block, which also contained a two-story annex of specialized research and storage rooms.²¹⁶ Like the mechanical laboratory and power house and the residential group, the physics building's structural system combined a load-bearing masonry perimeter wall with an internal steel frame. The roof trusses were also of steel.

The location of the physics building had determined its architectural resolution. As Watkin later explained:

Its position was within the Academic Court, a site originally reserved for academic classroom purposes. However, the limited means available for building and the possible long period of time before any single court would be brought to completion led to the placing of this science building immediately next to the administration building. There had been this understanding on our part as to the materials to be reflected in the General Plan. The buildings of the Academic Court were to be trimmed with marble. Those instructional buildings of other courts were to be trimmed with limestone. The buildings of residential areas were to be preponderantly of stucco finish with brick or limestone trim. This accounts for the interpretation that the amphitheater and research wing of the physics building was really a part of the engineering and science court. Consequently, the larger rectangular mass of the physics building facing the Academic Court was trimmed with marble while the amphitheater wing was trimmed with Indiana limestone. The building reflected more historical detail and Venetian ornament than would have been appropriate to a simple science building, but its proximity to the administration building seemed to justify this treatment.²¹⁷

As with the administration building, the physics building was scenographically organized, articulating its dependent status within the central campus group. The ends of the front elevation [61, 64] were emphasized rather than the center, which was thrown off-center so that the entire group could be adequately terminated by a three-bay western block. Within the central range (organized as an inset cloister of eleven bays bracketed by closed bays) the familiar academic approach of balancing horizontal and vertical alignments was pursued. Framed by brick-banded Tennessee marble piers, each bay within the resulting compositional grid contained a ground floor level arch crowned by a set of three windows. The central arch was slightly more pronounced, being wider and higher than its flanking numbers, which were almost imperceptibly graded downward in width and height to the outermost bays. The surrounds of the central entrance portal were decorated with polychromed tesserae. Above the central arch a wide balcony was added for emphasis. Within the otherwise unvaried framework of the second-floor zone the sill level of windows was stepped to reflect internal sectional changes. The resulting spaces between the sills and the uniformly dimensioned spandrels were filled with panels of dark-hued marble.

The vertically articulated end bays of the cloister contained arched apertures at ground level. Marble lunettes of plate tracery, adapted from the St. Luke of Stiris monograph, filled these arches [66, 105]. Above, set within indented vertical channels, were second-floor-level windows carried upward by Venetian Gothic ogee moldings and expanses of rose-colored marble. Bounding the indented channels were twin tabernacles enshrining extract vents [65], simplified versions of those atop St. Mark's Church in Venice [107]. To articulate its special function within the larger scheme, brick-banded marble was deployed within the three-bay west end pavilion as a dado beneath the ground floor windows and relieving arches above the second-floor windows. There the eaves of the tile-clad hipped roof were masked by a balustrade whose pedestals were stylized versions of the terminal devices above the column screen on the administration building.

The narrow west face of the physics building and the north elevation of the end block belonged stylistically to the academic court, while the east face and the ring road elevation [63] shared a kinship with the laboratory group across the street, developed in the more austere "basic" Rice style. The much simpler composition of these latter two facades was achieved primarily through the elimination of marble. The amphitheater portion of the rear block was evidently in transit between these extremes of elaboration and simplicity, heraldic owls and bands of *opus reticulatum* provided an ornamental bridge between the campus and the future laboratory group. Inside, only the main vestibule and stair were ornamented. Tesselated paving and a Quastavino tile vault (with the tiles exposed instead of plastered) were the primary embellishments; the divided stair was framed by a triple arched opening repeating the Katholikon exo-narthex motif from St. Luke of Stiris. Exposed tile vaulting reappeared in the museum cloister. The amphitheater was divided into a

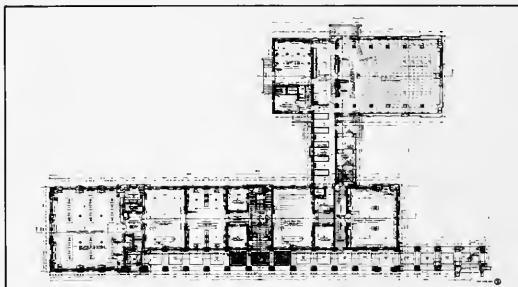
THE ACADEMIC COURT
EXTENDED

61 Physics building, Cram, Goodhue and Ferguson, c. 1913. Perspective view of south elevation showing proposed landscape design.

62 First floor plan from the construction drawings, 4 April 1913.



61



62

nave and side aisles by tall arcades carrying an exposed pine truss ceiling.²¹⁸

The physics building was scheduled for completion in September 1914, but according to a report appearing in the *Houston Daily Post* a delay in installing the laboratory equipment retarded the building's opening until December 1914.²¹⁹ Watkin, whom Lovett had invited to join the faculty as instructor in architectural engineering when the institute opened, supervised construction.²²⁰ The clerk-of-the-works was J.W. Northrop, Jr., who had been sent from Boston to replace A.C. Perry in 1911, when Perry was transferred to the Princeton Graduate College job.²²¹ The rendering of the south elevation which Cram, Goodhue and Ferguson prepared again illustrated a campus reflecting pool advocated in earlier renderings of the administration building.

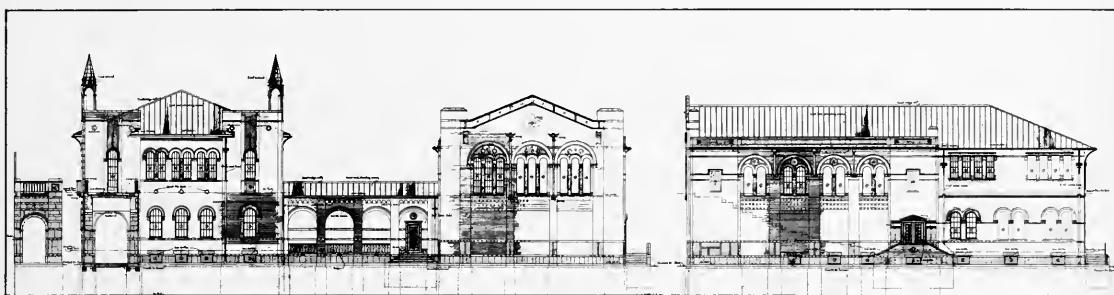
THE last campus building designed under the firm name Cram, Goodhue and Ferguson was East Hall, a dormitory block located alongside the commons and now part of Baker College [frontispiece]. Bertram Goodhue withdrew from the partnership on 1 January 1914. Thereafter the firm was known as Cram and Ferguson.²²² The drawings sent from Boston in early November 1913 were approved by the trustees later that same month.²²³ On 5 December 1913 the general contract was awarded to James Stewart and Company for \$103,800.²²⁴ According to the *Daily Post*, even the conversion of faculty rooms in the faculty tower had proved inadequate to alleviate overcrowding in South Hall, making a new dormitory imperative.²²⁵

In plan East Hall was organized, like the administration building, around three sets of stairs. Bedrooms, studies and a bathroom were disposed around stair landings on each floor. The stairs were routed up the north wall as in the faculty tower, an arrangement which apparently proved more satisfactory for ventilation than had the double-loaded corridor scheme used in South Hall.²²⁶ As with the other two components of the residential group, a fifth-floor loggia was incorporated in the tower, which terminated the horizontal range at one end of the building. A cloister was cut beneath this range on the south side of the dormitory and it continued westward beyond the dormitory and along the north face of the dining hall to connect with the serving line in the commons building.

The basic residential group sub-style of roughcast plaster above a masonry base was extended to East Hall, with the addition of such new details as tessellated bands at the top of both the tower and the terminal bay on the west side and interposed within the masonry courses above the cloister. The dark, wooden window bays, projecting out from the wall surfaces of the third-, fourth- and fifth-floor levels and the brackets supporting the low-pitched tower roof, were details which Cram, Goodhue and Ferguson appropriated from a Bhutanese building illustrated in a *National Geographic* article of 1914.²²⁷ This exotic note, transcribed from even further "east of Venice," as Schuyler observed, than Goodhue's auditorium, bore enough of an affinity to medieval Italian work to permit its integration into the prevailing theme. The cloister connecting East Hall and the commons also obtained somewhat novel treatment. The arches were wide, low-sprung half circles. East Hall was scheduled for completion in September 1914, but it was not finished until 1915. In contrast to the earlier institute buildings, reinforced concrete, not steel, was used for the interior frame.²²⁸

In late 1915 Cram and Ferguson prepared plans for a third dormitory, West Hall, now part of Hanszen College.²²⁹ This building was to be the first component of the second residential group located west of the cross-axis bisecting the residential sector, between the south loop of the inner ring road and Main Street Road. In position West Hall corresponded to South Hall within the first residential group and it was ultimately intended to be joined by a commons building and a second dormitory to constitute a second quadrangle. West Hall was organized in the same manner as East Hall, around three sets of stairs, and combined elements of its two predecessors. Like East Hall, it was punctuated at one end by a five-story tower; but the tower-terrace configuration more closely resembled that of South Hall. A ground floor, south-facing cloister made a right angle penetration into the building producing a "slype" as in South Hall. The decorative scheme was enlivened by the use of brick to "reinforce" the roughcast exterior wall surfaces with banding and to provide window sills and ragged quoining. Gothicizing detail was selectively employed. The buttressed cloister piers also reflected West Hall's Rice pedigree. Hints of the Bhutanese appeared in the verge boards of the vertically accentuated stair and entry bays and in the eaves brackets of the five-story tower. The general contract was awarded

63 *East elevation showing the laboratory block (left) and the amphitheater (center) joined by the museum cloister; north elevation of amphitheater (right), from the construction drawings, 4 April 1913.*



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to Horton and Horton of Houston in early January 1916 for \$98,900 with completion scheduled for the opening of the fifth school year in September.²³⁰ Watkin and Northrop were active again as supervising architect and clerk-of-the-works, respectively.²³¹

By the time West Hall, accommodating one hundred twenty-eight students, was completed the Rice Institute had graduated its first class. The school's enrollment increased from about two hundred fifty in 1916 to six hundred fifty in the early 1920s, reaching thirteen hundred by the mid-20s.²³² Nevertheless, no further dormitory construction was undertaken during Lovett's tenure, although the possibility of constructing "a residence group for men of the graduate college of the Rice Institute" was contemplated briefly during 1921. But no architectural studies were made.²³³

One other residential endeavor did, however, occupy the attention of Lovett and the architects: house for the president. Among the meager correspondence surviving after 1910 is an anguished five-page letter written in December 1912 by Cram, Goodhue and Ferguson to Lovett, on the subject of the president's house:

For fifteen months this house has been in the condition of preliminary sketches, and at this present writing it has not advanced one step beyond this, yet we are expected to prepare working plans for a \$60,000 house, have those plans estimated on, and the contract carried out, all in the space of nine months...We are more deeply interested in the Rice Institute work than in almost anything else on which we are engaged at the present time; we are assured that the work, as thus far carried out, is "era-making;" we desire to do everything within our power to meet your wishes and to ensure the continued excellence of the architectural work we are doing for you, but we protest against the delays for which we are not responsible, and which can only result, as we have stated above, in disappointment and dissatisfaction, and in order that the matter may be perfectly clear, and the responsibility distributed where it belongs, we are sending you this categorical statement of dates and facts.²³⁴

The chronology contained in the letter indicated that plans for a president's house were initiated in June 1911. Cram apparently asked Lovett for permission to begin final plans during the opening ceremonies in October 1912. The set of drawings sent to Houston in September 1911 were estimated at a construction cost of \$80,000. Cram, Goodhue and Ferguson revised the

scheme to comply with the president's request for a \$60,000 house and in December 1912 began to prepare final drawings with the understanding that only minor changes were to be made by the president, who desired that the house be completed by the fall of 1913. Just before Christmas, Watkin notified the Boston office that Mr. and Mrs. Lovett had decided to enlarge the size of the first floor rooms, completely negating the efforts already undertaken on the final drawings and prompting the architects' truculent letter.

Working drawings were finally prepared in April 1913 for the president's house [70]. Although it was to be sited in the faculty residence quarter in the north-eastern sector of the institute grounds, the house was architecturally akin to the design manner evolved for the residence group. The irregular massing, the combination of a brick and stone base with an upper surface of roughcast plaster, and the contrast of a three-story tower, topped by a heavily bracketed belvedere, with long, cloistered ranges bespoke a similarity to the commons and South Hall. Unquestionably the house would have been one of the grandest in Houston. Four sets of stairs were required to link the several levels of the building. On the ground floor an expansive study contained a private entrance next to the front door, with a separate stair to the second floor and basement. Beyond the main stair hall a salon and a living room were paired just beyond the front cloister. Accessible from the living room was a dining room of seven hundred square feet. Presumably at Mrs. Lovett's request, a tea pavilion was appended to the main stair hall.

The minutes of the board of trustees reveal that Lovett presented the drawings for the president's house, along with those for the physics building, on 29 May 1913.²³⁵ Bids on the house had been solicited for 5 May 1913 but apparently the solicitation was cancelled.²³⁶ At a board meeting on 9 July 1913, an appropriation of \$35,000 was authorized for a president's house. This was increased to \$45,000 on 1 August.²³⁷ While this was not a mean sum in Houston in 1913, it was not sufficient to realize the Lovetts' intended house.²³⁸ A final reference to this house is contained in several letters which J.T. McCants, the institute bursar, sent to contractors on 26 August 1913 notifying them that "plans for the President's House have been completely changed and later I shall take pleasure in inviting you to submit a bid in accordance with the new specifications."²³⁹

64 Physics building, south elevation, c. 1915.

65 Detail of south elevation, west tabernacles.

66 Detail of south elevation, west entry.



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Two years later, in August 1915, William Ward Watkin wrote Cram a letter detailing the latest developments on the president's house project. Cram was apprised that Lovett "must have the space within the house which the last plans provided for, and it would be uncertain as to whether he could get the money to the amount of \$75,000 and certainly it would invite a criticism which would be very annoying should he attempt to do so at this time."²⁴⁰ Watkin therefore proposed to erect a wood-frame house for \$50,000 incorporating the same square footage contained in the plan of two years earlier. His letter continued:

The only real problem that we are anxious to have an expression of your opinion at this time is the fact that if a frame house is built, the only consistent and possible style for this Southern climate lies in the Georgian type similar to those of North and South Carolina and Virginia, and it has been along such lines that we have blocked out plans and elevations, which meet with President Lovett's approval—in fact, he is enthusiastic concerning them...Of course, the drawings, etc., after they have been more fully considered, will go to you for approval, but at this time we frankly ask your opinion as to whether the style along which we are moving is not the most proper, even in view of the fact that it lacks conformity with the buildings upon the Institute site, being well back and away from all buildings, with a good cluster of trees around it, it would have, even in frame, a certain color, refinement and dignity, within the limits of the means available. We would appreciate your advice at once on this point.²⁴¹

Cram's reply to this query does not survive. Despite the firm's pragmatism, it seems doubtful that he would have approved Watkin's proposal. The Cram and Ferguson drawings log noted the receipt of Watkin's five drawings; by mid-September, a set of study drawings for the house was in preparation in Boston. These were mailed to Houston in the same month, but they are not among the surviving Rice drawings.²⁴² Whether they represented the Boston office's development of the Houston office's scheme, or a counterproposal, is unknown.

An undated set of design drawings for a third president's house does exist [71]. The Cram and Ferguson drawings log records this set, but no dates are noted. A stamped date of 1 February 1917 on the same sheet marks the Boston office's receipt of blueprints of their drawings, sent from Houston, probably indicating that the plans were prepared in late 1916.²⁴³ This scheme was a reworked, but hardly diminished, version of the president's house of 1913. The tea pavilion had disappeared but the house was supplemented with a sizeable billiard room. There were five staircases instead of four. Like the earlier scheme, the architectural treatment was derived from the residential group. The fourth-floor tower loggia and terrace closely resembled the configuration used for South Hall. This president's house proceeded no further than its predecessors; in fact, there was no new construction at the Rice Institute between the completion of West Hall in 1916 and the end of World War I.

ALTHOUGH the Rice Institute campus was located in open countryside when the school opened in 1912, it did not remain in isolation for long. In May 1908 the trustees had initiated—through the sale of the

nine-thousand-acre Rice Ranch to the South End Land Company²⁴⁴—a series of events which would prompt Houston's expansion for several miles to the south and west of the future campus site. The South End Land Company had Sid J. Hare, a Kansas City landscape architect, lay out the suburban village of Bellaire in the center of the Rice Ranch. A "boulevard" connecting Main Street Road to Bellaire was constructed south of the Rice campus, stretching four and one-half miles across the prairie.²⁴⁵ A streetcar line was routed down the central esplanade of the shell-paved thoroughfare with electric guide wires strung out on a file of poles, marking the westward advance of civilization. The Rice Ranch transaction virtually assured that future development would occur in the expanse of territory lying between Houston and the South End Land Company's new project, an expanse which included the Rice campus and its immediate surroundings.

Simultaneously, a movement was initiated to extend and widen Main Street Road as a boulevard from the southern city limits to its juncture with the Bellaire boulevard. The traction line was to be extended southward along the line of Fannin Street (one block east of Main) to parallel the new boulevard out to the Bellaire rail line.²⁴⁶ The street railroad was constructed at once, so that by the time the Rice Institute opened, students could ride the South End shuttle car to school. Main Street Road remained a country lane however, and as Wilmer Waldo's frequent reports to the Rice trustees on campus flooding testified, a heavy rain easily could submerge the byway.²⁴⁷

Eventually, when the paving and "parking" of Main Street Road was undertaken, it was to figure as an important component of Houston's emerging civic art movement. In 1910, H. Baldwin Rice (a nephew of William Marsh Rice and brother of William M. Rice, Jr.), then in his third consecutive term as Mayor of Houston,²⁴⁸ appointed the city's first board of park commissioners. Among the members were George H. Hermann, the real estate investor from whom the largest portion of the Rice campus property had been purchased, and Edwin B. Parker, an attorney and partner of James A. Baker.²⁴⁹ The commission initiated an aggressive program of park acquisition and in 1912, it retained the Cambridge landscape architect, Arthur Coleman Comey, to prepare a comprehensive park plan for Houston.

Comey's report, published as *Houston: Tentative Plans for Its Development*, was actually a masterplan of urban improvement. Employing public park space as a unifying infrastructure, Comey specified a hierarchical grading of park types, of which one—the boulevard—was recommended for Main Street. From Lamar Avenue (in the downtown area) to Bellaire Boulevard, it was to be designated "by ordinance...for pleasure driving only."²⁵⁰ The destination of this landscaped thoroughfare was to be "Pines Park," a reserve of several hundred acres just across Main Street Road from the Rice campus. Comey advised that options be taken on the property at once, as the "opportunity to acquire such a...tract...is not apt to remain open many months with the present rapid real estate develop-

67 Physics building. Detail of museum cloister looking north, 1914



68 Detail of cloister connection to administration building, 1914.



ment.²⁵¹ Comey's park was to serve as the major open space in a projected inner park system, to be created by exploiting the regional bayou network as linear parks linked by parkway boulevards. Whether or not George Hermann's position as a park commissioner prompted Comey's specific recommendations is uncertain, but a year after the report was issued, the investor donated two hundred and eighty-five acres in the area of "Pines Park" to the city for a municipal park.²⁵² Hermann died five months later and his park gift was dedicated as Hermann Park. E. B. Parker commissioned George E. Kessler of St. Louis, one of the most noted landscape architects in the Middle West, to prepare a masterplan for the development of the park as consultant to the park commissioners.²⁵³

The transformation of the land around the Rice Institute as a demonstration of civic planning and beautification was immediately reinforced by the actions of Joseph S. Cullinan, an oil operator who was responsible for bringing Kessler to the attention of the board of park commissioners.²⁵⁴ Cullinan had purchased the thirty-seven acre "Hermann Triangle," just north of the main entrance to the Rice Institute, from the Hermann estate in February 1916.²⁵⁵ Judging from Cullinan's correspondence, it is apparent that he and Hermann had discussed the possibility of developing this property "in keeping with...the development of the park and the Rice Institute,"²⁵⁶ a desire which Hermann had communicated to his intended executors prior to his death.²⁵⁷ Between 1916 and 1919, Cullinan transformed the property into a restricted residential subdivision containing twenty-four lots, which he sold to friends and business colleagues. To insure that Shadyside (as the neighborhood was called) maintained the standard of planning set by the Rice Institute and the board of park commissioners, Cullinan had George E. Kessler lay out the subdivision in September 1916. Kessler's plan was implemented by the Houston engineer Herbert A. Kipp, who was also resident engineer for the park commissioners.²⁵⁸

It would seem that Cram, Goodhue and Ferguson's architecture exercised a persuasive influence on Ima Hogg, the daughter of former Governor James Stephen Hogg and the sister of one of Cullinan's associates, Will C. Hogg, for she suggested that Cullinan consider having all the houses in Shadyside conform to a single architectural style, most appropriately Italian to harmonize with the buildings of the Rice Institute.²⁵⁹ Cullinan replied that he had entertained the notion of commissioning Cram and Ferguson for work in Shadyside but eventually had decided against this.²⁶⁰ Acting on Kessler's recommendation, Cullinan hired a St. Louis architect, James P. Jamieson, to design his family's house, built in 1917-1919, the first in Shadyside.²⁶¹ Additional houses were not constructed in the subdivision until after World War I, and no attempt was made at imposing stylistic uniformity. Yet the two houses which Watkin designed there—for Mr. and Mrs. Harry C. Weiss (1920) and Mr. and Mrs. Frederick A. Heitmann (1923)—were carried out in an Italian vein; they were also the two houses along Main Street closest to the main entrance of the Rice Institute.²⁶²

As the improvement work in Shadyside was being

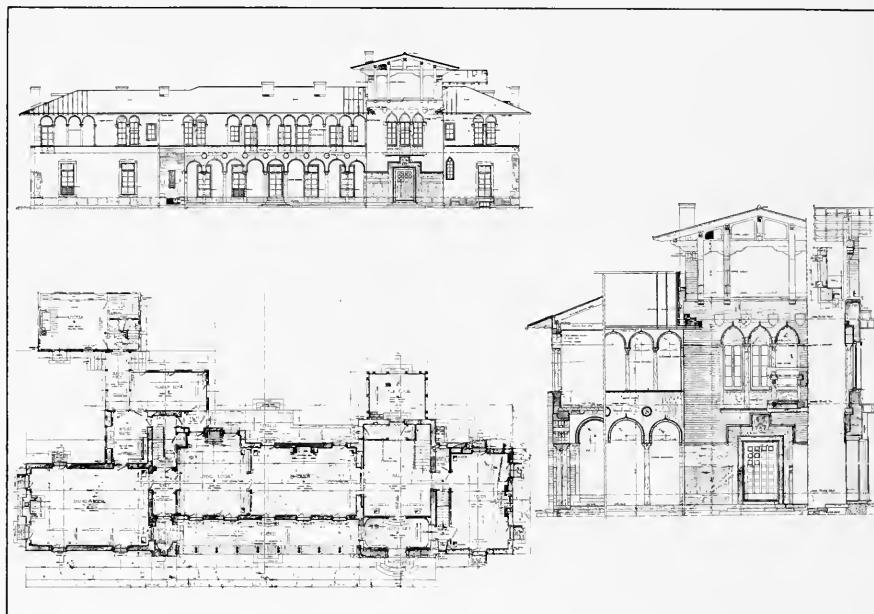
planned, the city commenced the reconstruction of Main Street from McGowen Avenue to Bellaire Boulevard as a four-lane paved thoroughfare, divided by a grassy esplanade. Concurrently, Montrose Boulevard, the central street in Montrose Place (an affluent residential subdivision opened in 1911 several miles north of the Rice campus), was extended southward diagonally intersecting the new Main Boulevard across from Shadyside, just at the point where Hermann Park began. Kessler made this intersection the entrance to the park, planting a traffic ellipse at the juncture of the two thoroughfares and axially penetrating the park with a continuation of Montrose, which then broke into a series of picturesque loop drives. Just north of the new park, the real estate developer Henry F. MacGregor had laid out the contiguous South End subdivisions of Blodgett Park, Kenilworth Grove and Southmore. Encompassing sixty-two blocks of residential property, they finally spanned the open countryside between Houston and the park and campus area. Accessible by the street railway and Main Boulevard, the shelled roads of these subdivisions were soon dotted with the houses of prosperous business and professional people. Members of the Rice faculty especially seemed to favor Southmore, where Watkin and a number of his colleagues built houses.

George Hermann had charged the executors of his estate with the primary responsibility of constructing and operating a charity hospital, to be situated on a twenty-acre tract south of the park. The Hermann estate trustees, however, chose to postpone this endeavor, and it was not until after World War I that planning for the hospital was actually begun. But the estate trustees were active in another benefit—the institution of a municipal art museum. In 1913 Mrs. Corinne Abercrombie Waldo, the sister-in-law of Wilmer Waldo, had approached George Hermann on behalf of the Houston Art League to propose that he donate a piece of property to the league for the construction of an art museum.²⁶³ Hermann was amenable to the request but died before the transaction could be made final. His trustees honored his intention and negotiated with the league the transfer of a portion of the triangle resulting from Montrose Boulevard's extension between County Poor Farm Road and Main Boulevard. The league obtained the financial support of J.S. Cullinan in order to acquire all the land within the two and three-quarters acre triangle. Dr. Lindsey Blayne, president of the art league and professor of German at the Rice Institute, accepted the site in 1916; eight months later the property was dedicated by the Houston Art League.²⁶⁴

Further north on Main Boulevard, at the corner of Holman Avenue, Cram and Ferguson received, in 1917, their first commission in Houston not connected with the Rice Institute, a church and parish house for Trinity Church. The job seems to have been obtained by William Ward Watkin, who was a parishioner of Trinity Church. Watkin evidently played a significant role in the design of the church group and, although Cram and his assistants in Boston provided the initial drawings, the final scheme was Watkin's responsibility, with Cram advising, criticizing and approving.²⁶⁵ This arrangement, which appears to have been initiated

69 *Aerial view of the Rice Institute campus looking west from the main entrance, 1920.*





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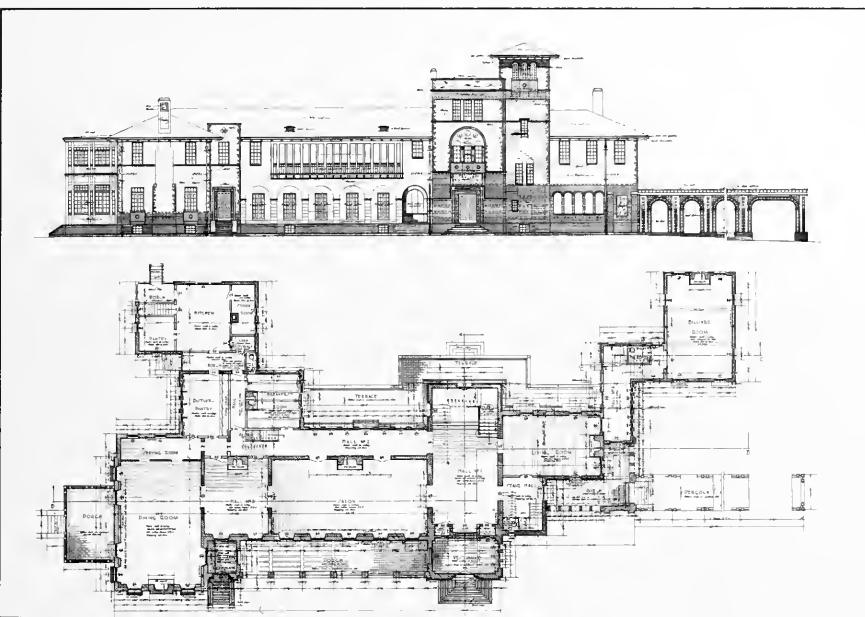
with the president's house projects, was to establish a precedent for Watkin's and Cram and Ferguson's collaboration on Rice Institute building projects during the inter-war years, for on 15 November 1919 Cram and Ferguson closed their Houston branch office. Watkin and Northrop (both nominally Cram and Ferguson employees, although each had already commenced his own practice in Houston) ceased affiliation with the firm. Watkin agreed to act as supervising architect for Cram and Ferguson on any future work they might receive in Houston.²⁶⁶ It appears, however, that Boston and Houston were to collaborate on design projects, thereby rendering the precise assignment of responsibility for buildings erected on the Rice campus in the 1920s somewhat uncertain. Watkin, by then both chairman of the architecture department and curator of grounds for the institute, exercised a degree of influence on the design of these subsequent campus buildings which he does not appear to have exerted on the pre-war work.

THE Rice Institute's first post-war building was a fieldhouse erected in the summer of 1920. Located south of Harris Gully and facing Main Boulevard, it was the first institute building to deviate from the general plan. This was done purposely, for it was intended as a temporary facility and therefore relegated to a portion of the institute site marked for interim development.²⁶⁷ The drawings were prepared by Watkin in Houston in May 1920,²⁶⁸ the same month the board of trustees awarded the general construction contract to Tom Tellepsen of Houston for \$53,759.²⁶⁹ The structure was

completed by the fall of 1920.

The fieldhouse comprised a two-story brick and stucco box (covered with a hipped tile roof) split in half by a double-height basketball court. Brick and plaster piers upholding a parapet divided the glazed expanse into regular bays. The frank display of steel-sash fenestration units was somewhat startling, but the temporary nature of the fieldhouse and its isolated location no doubt persuaded both architects and client against attempting a more elaborate decorative scheme. The east elevation of the building faced the street while the opposite side terminated a playing field around which bleachers were constructed. Correspondence between Watkin and Lovett implies that the fieldhouse was built under several constraints involving a limited budget allowance and a shortage of materials.²⁷⁰

As Rice's enrollment expanded after World War I, new facilities were required to accommodate the increased number of students. The chemistry laboratory, anticipated since 1909, had been marked by the mid-teens as the next academic building to be constructed.²⁷¹ In the summer of 1921, Watkin wrote President Lovett on his architectural office stationery proposing that a building be constructed opposite the physics building (on the south side of the administration building) to house temporarily the library and a twelve hundred fifty-seat college meeting hall. Watkin advised this "...inasmuch as the new Chemistry Laboratory will not be likely to come within this year's budget...and especially as it is possible to build this wing [i.e., the south



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'wing' of the administration building] in time for its use at the tenth anniversary of the opening of the College in September 1922."²⁷² Watkin cited the need for more classroom space in the administration building and the overcrowding of the existing library as factors compelling new construction. His estimate of \$206,500 for general construction and interior fittings seems quite low, considering that the general contract for the physics building eight years earlier had amounted to \$80,000 more. This proposal apparently did not survive long enough for actual drawings to be made.

A YEAR later, in October 1922, architectural studies for the chemistry building [72] were begun. None of these survive. The Cram and Ferguson drawings log for the project is somewhat ambiguous, but it appears that Watkin submitted two different plan schemes and that a perspective was made in Boston. In March 1923, two elevations and an elevation detail were prepared in the Boston office and sent to Watkin in Houston; the other drawings listed in the log were made in Houston²⁷³ and Watkin's office prepared the construction drawings. The building was credited to Cram and Ferguson and William Ward Watkin, associated architects, and although photographs of it appeared in *The Work of Cram and Ferguson, Architects*, Watkin included the chemistry building in his own office brochure (as he did not do with any of the pre-war Rice buildings); and it was he who worked with the head of the chemistry department, Harry B. Weiser, in planning the building.²⁷⁴

The site selected for the chemistry building was north of the campus ring road and southwest of the mechanical laboratory. In the general plan this location was projected as one segment of a quadrangle interposed between the laboratory group and the central campus; a building configured like the physics building was shown there. The size and functional requirements of the chemistry building made this arrangement of slab and block unacceptable, as Watkin explained:

There was no longer the conception on our part of a simple rectangular mass as constituting a desirable form. This was still more apparent when one considered the required areas which the Chemistry Laboratory problem set up. It was necessary, in order to keep it in proportion to the other building sites of the future court of engineering and science, to add an additional story rather than to spread it out unseemingly across the prairie. The identity of the unit laboratories was made very evident in the form of the building.²⁷⁵

In plan the chemistry building was organized around a long circulation spine which paralleled the ring road and the main axis. Two projecting wings contained the unit laboratories mentioned by Watkin (two per level, six per wing). Entrances and stairs were clustered along the corridor. Externally, the building was punctuated by a tower exhaust stack set between the two laboratory wings. To conform to the set-back profile indicated in the general plan, the amphitheater was treated as a third wing, verging on the ring road. On the opposite side of the central spine were an assortment of offices, storage spaces and small laboratories. The large laboratory rooms and the amphitheater were positioned to



William Ward Watkin (1886-1952)

take advantage of the prevailing southeast breeze.

Working drawings were made in the spring of 1923 and a general contract was awarded to the Tellepsen Construction Company on 19 July 1923.²⁷⁶ Serving successively as clerk-of-the-works were two of Watkin's employees and former students, A.B. Ellis and Stayton Nunn.²⁷⁷ Late in the fall, serious problems developed over the availability of a suitable brick. In order to match the existing pink face brick, Watkin was able to persuade the Rice Institute to advance funds so that the only brick company in the area which would agree to make the bricks could escape receivership. He then arranged to re-open the clay deposits on Brady Island in the Houston Ship Channel (where the by then defunct Sherman Brady Brick Company had operated) to acquire the right types of clay.²⁷⁸ Watkin and Tom Tellepsen were able to locate the Brady Brick Company's aged foreman, Albert G. Williams, who specified the correct clay and the firing process used in the original manufacture.²⁷⁹ The delay entailed, however, did cause completion of the building to be retarded from September 1924 until April 1925.²⁸⁰ Watkin at one point reported to the president:

This brick situation is the most amazing and disturbing one that I have had in connection with any of the building projects at the College, and I feel that if we do solve it we had better stick to it long enough while we are about it and get enough brick stored up for at least one or two more buildings...²⁸¹

The elevations of the chemistry building differed as markedly from the appearance of the earlier buildings as did its plan. Watkin's recollection of the campus development dealt with the cause of this difference. Referring to Cram's eclectically devised style as "somewhat of the character of an architectural thesis," he allowed that its purpose was to "serve as the foundation for still further and more complete solutions as experience was gained from the actual buildings themselves. Such was indeed the experience which prevailed from 1925 to 1930."²⁸²

The treatment of architectural detail in the chemistry building was much less eclectic than that of prior campus work. The historic source of this detail was the Lombard Romanesque of Northern Italy. Cram's restudy of Watkin's proposed main (south) elevation survives in the reproduction of a rendered elevation of 14 October 1922. Watkin's restudy of Cram survives in a somewhat less accomplished elevation drawing prepared by Clarence M. Sanford in Watkin's office. Comparing the two, Cram's elevation seems more tightly composed. The spine connecting the forward projections was treated as a continuous mass. Planarity was emphasized both through the decreased number of smaller windows, the relative solidity of the ground floor base, the staged pier buttresses subdividing the projecting laboratory wings, the more carefully integrated fenestration of the laboratory bays, and the closed aspect of the amphitheater elevation and the terminal block behind it. Judging from the changes made, Watkin's revision was probably occasioned by financial constraints (less decorative marble, elimination of the pier buttresses and parapets on the laboratory wings)

as well as functional requirements. Watkin's increased fenestration diminished the compositional power of Cram's walls, but it undoubtedly improved ventilation on the ground floor and in the amphitheater. As constructed, the chemistry building documents Watkin's pronounced taste for picturesque effect. The extruded tower articulating the west cloister (next to the amphitheater) terminated a lateral vista past the facades of the laboratory pavilions, romantically evoking the image of an Italian townscape. Although Watkin made no reference to it in his memoirs, the front elevation of the main amphitheater appears to be an adaptation of the main entrance to the Free Museum of Science and Art at the University of Pennsylvania, designed by Wilson Eyre, Cope and Stewardson, and Frank Miles Day and Brother. It is tempting to suspect that Watkin, in a school so dominated by the shadow of Princeton, was making sly reference to his own *alma mater*, Penn. This playful spirit extended to the sculptural detail. James Chillman, Jr., assistant professor of architecture and a fellow Penn alumnus, designed sculptural panels on the west court cloister in which prominent faculty members—including Watkin and Weiser—were portrayed in humorous allegory. Oswald J. Lassig again was responsible for the execution.²⁸³

Despite its differences, the chemistry building related to the older structures in salient features: the *cloisonné* ground floor base, the horizontal limestone bands, the articulation of planar relief (here with a much greater exploitation of relieving arches), and the use of marble, tile and ornamental brick bonds for decoration. As was customary, the interiors were simple. The long corridors on the ground floor acquired a decorative masonry accent where intersected by nodes of vertical circulation. Of particular interest were the "smoking room," located in the undercroft of the amphitheater and the chemistry department library at the west end of the second floor, where metal book stacks were suspended from the ceiling by exposed tension rods.

As planning for the chemistry building progressed, the president's house project was resurrected. In February 1923 Cram prepared new sketch plans for a house and in July apparently made revisions.²⁸⁴ In October 1923 Cram sent presentation plans and a pencil perspective for a three-story house to Lovett from Boston, accompanied by a note calculated to induce enthusiasm. Cram wrote Lovett: "I hope that your family may like this house as much as I do. Personally, I cannot imagine a more effective arrangement and I think the interior piles up wonderfully."²⁸⁵ On 26 October, President Lovett submitted these drawings to the trustees and they authorized continuation of the project.²⁸⁶

A note from Cram to Lovett of 5 October suggests that the president had devised a novel means for circumventing criticism of expenditures for the house by proposing to erect it as a memorial to William M. Rice.²⁸⁷ Sketches for a "William Marsh Rice memorial monument" drawn by Alexander E. Hoyle were sent to Lovett in October along with the house plans and perspective.²⁸⁸ Cram wired Lovett later that month with the estimates on the house, and suggested he have Watkin verify an estimate of \$35,000 for a "Rice



EXPANDED ENROLLMENT

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memorial" statue.²⁸⁹ The nature of this memorial was clarified in letters sent by the president to James A. Baker and William M. Rice, Jr. He envisioned "placing in the center of the open air court or patio about which the house is built an uncovered bronze statue of the Founder, either in the form of a standing figure...or a seated figure."²⁹⁰ In November, Watkin, responding to Lovett's suggestion concerning the "possible development of the necessary house for the president of the institute as a 'Founder's House,'" proposed that the grained wood surrounds in William M. Rice's old house be procured from the then-owner and incorporated into the memorial-residence.²⁹¹

In a separate letter of the same date to the president, Watkin estimated the total cost of the proposed house to be \$140,500 for 253,000 cubic feet of space, an estimate which he supplemented with an independently obtained projection. Whether because of the expense or because of the difficulties then developing over the construction of the chemistry building, the project again was tabled. One year later, in October 1924, four pencil-and-colored-pencil-on-tracing-paper sketch plans and elevations for a two-story, stucco house of 100,000 cubic feet were transmitted to President Lovett from Boston.²⁹²

These drawings testify to Cram's then current interest in Spanish architecture.²⁹³ Despite the extreme reduction in cubic footage the house was huge, although not nearly as grandiose as the pre-war projects had been. Raised on a high basement, it was bisected in plan by the main entrance hall which separated the "state apartments" from the family section, dining room and study, and service facilities. The one-story kitchen was an independent structure, picturesquely linked to the main house by a "breezeway." As in the earlier schemes, terraces and loggias permitted an expansion of the living spaces out of doors. Yet the elevations were quite different in character from the projects of 1913 and 1916. The treatment was decidedly Spanish.

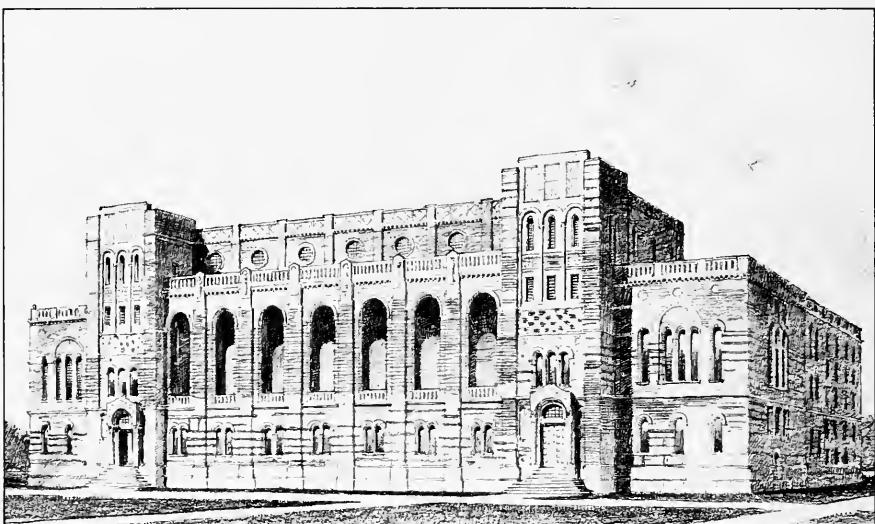
Little attempt was made to recall characteristic features of the existing campus architecture except that the exterior walls were to be of roughcast plaster and the roof tiled. The off-center gable, the corbeled and battered chimneys, the articulation of the coat room and kitchen, and the picturesque profusion of ironwork grilles

implied a certain folkishness belying the grandeur of the interior.

This villa shared the fate of its predecessors, although not without first becoming a minor *cause célèbre*. The Houston *Press* of 22 February 1924 reported in a sensational article which James A. Baker clipped and inserted in his scrapbook, that drawings for a "magnificent house" for Lovett, estimated to cost \$300,000, were on file for contractors in Watkin's office. The institute's business manager, A.B. Cohn, informed the reporter that the trustees had authorized no such project, as all construction funds were being expended on the chemistry building. Furthermore, it was reported that this project was opposed by the Rice faculty, who felt that a women's dormitory (to which Lovett was said to be opposed) was more urgent a priority than a president's house. In conclusion, the *Press* reported that the board of trustees' failure to approve the project was rumored to be a token of their dissatisfaction with Lovett's administration. This was one of the rare instances of controversy regarding the Rice Institute building program surfacing in written form.²⁹⁴ The Cram and Ferguson drawings log records no further schemes for a president's house, nor do the Lovett or Watkin papers indicate that the project was ever again considered during Lovett's administration.

Houston's demographic and economic expansion during the last half of the 1920s decade encouraged a confident view of the future. The increase in Rice's enrollment placed demands on the campus facilities which the construction of the chemistry building did little to alleviate. But the Rice Institute, despite popular misconceptions to the contrary, was constrained by a lack of operating funds. The endowment, which had increased from approximately \$4.5 million in 1904 to approximately \$10 million in 1912, grew much more slowly after the war. By 1924 it had risen to only \$14 million and the institute was forced to pursue its educational program within strictly circumscribed bounds.²⁹⁵ Nevertheless, projects for new academic buildings were entertained. Restrictive financial conditions seem to have even prompted a new approach: design studies were commissioned on "speculation" in the hopes of persuading potential donors to contribute to their realization.

"SPECULATIVE" PLANS



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In a letter of 30 October 1926 Watkin asked Lovett's permission to initiate a "thorough study of the ultimate Fine Arts Group...and more particularly the portion of such group which would probably house the School of Architecture."²⁹⁶ Assuring the president that his study would be gratuitous, Watkin predicted that an architecture building could be designed so as to cost very little, and that with plans in hand, it would be much easier to approach a potential donor. Another project for which documentation is available is a study for the institute library. As Watkin had indicated to the president in 1921, the library space in the administration building was quite inadequate. In 1927 Cram and Ferguson mailed Lovett sketch plans, an elevation and a pencil-and-colored-pencil-on-mountboard perspective of an institute library. Only Alexander E. Hoyle's perspective [73] and an accompanying cover letter to the president remain. Terming these studies "the merest approximation of what you might want," Hoyle acknowledged that when serious planning for a library began, "it might happen...that an entirely different arrangement would be used."²⁹⁷ The location contemplated for the library is uncertain, although the general plan called for it to flank the commencement hall, bounding one edge on the western half of the great square. While the front elevation depicted in Hoyle's rendering corresponded to the building shape illustrated in the general plan, the five-story stack area shown at the rear on the perspective drawing extended so far back that it would seem to have obstructed the campus loop road. A seven-bay loggia on the main elevation was flanked by two towers containing the main entrances. Wings depended from each extreme. A clerestory linking the two towers was indicated behind the loggia.

The basic organization of the front elevation of the pro-

posed library—a double-height arcuated loggia above the first level connecting two principal flanking masses—recalled Cram and Ferguson's neo-Georgian Stetson Hall at Williams College of 1920. The effect of the surface treatment of the proposed library was to recast the east elevation of the administration building in terms of Cram's chemistry building elevation. The ground floor was of marble striated with brick above a marble base. The upper floors were faced with brick cut by horizontal limestone courses and fields of marble and tile work. Both the pier-buttresses and the flanking entrance towers were staged; the regular rhythm of the central range and the planar closure of the towers denoted the continuity of the Rice style. The trio of arched windows, enframed beneath a relieving arch with tesselated tympanum, which appeared on the terminal bay was derived from Cram's elevation study for the chemistry building. So, too, were the column-supported hoods above the two front doors.

IN 1928 the Association of Rice Alumni began a fundraising campaign to build a three-story classroom building as a memorial to William M. Rice.²⁹⁸ It was to be constructed opposite the physics building on the south side of the academic court [74]. Although Lovett had received the sketches for such a building along with the library studies in December 1927, three floor plan sketches and an elevation study were prepared by Cram and Ferguson one year later and in March 1929 two additional perspectives were sent to Houston from Boston.²⁹⁹ A third perspective, dated 4 April 1929 and numbered in sequence with the earlier material, is not listed in the Cram and Ferguson drawings log.

As might be expected the campus elevation of the



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classroom building reflected the presence of the physics building across the court, but it was not merely a mirror image of the laboratory, for as Hoyle apprised Lovett, the architects had decided to "make a good many changes in detail."³⁰⁰ As on the earliest existing perspective studies, a dialectical play of massing and fenestration was skillfully manipulated. The western terminal block duplicated in fenestration and height its opposite number on the physics building. Next to this was an eleven-bay range terminated at each end by vertically emphasized bays. It was in this central range that the most striking divergence was subtly apparent: the eaves line was held at the same level as the balustraded parapet on the western end block, permitting the insertion of an extra floor beneath the roof. Thus the classroom building, for most of its length, would have ranged half a story higher than the physics building.

This difference was cleverly minimized by repeating the second-floor fenestration pattern and cornice treatment of the physics building in the third floor of the classroom building and directing attention away from the roof line by introducing single tabernacles in place of the double members which occurred above the vertically emphasized bays on the physics building. Flat-headed windows and doors—one opening per bay—were used on the second floor, continuing the pattern present on the second floor of the administration building. A minor modification of the physics building design was made in the ground floor wall composition which was completely of brick and banded marble. The classroom building perspective emphasized the setback massing of details, especially in the vertical bounding bays. The onset of the Great Depression made the realization of this building (which had been

projected for completion in 1942) impossible, as the subscription of \$500,000 could not be met.³⁰¹

THE next campus building to be constructed after the chemistry building was the Robert and Agnes Cohen House [75-78], the institute's faculty club. George S. Cohen, the president of Foley Brothers department store, proposed to the board of trustees in March 1927 that they permit him to donate \$125,000 for the construction, equipment and maintenance of a faculty club in honor of his parents, Agnes Lord and Robert I. Cohen of Galveston. Cohen made an immediate gift of \$25,000 for the maintenance fund and borrowed \$100,000 from the Rice Institute to construct the building.³⁰² Watkin was selected as architect; Cram and Ferguson were retained as consulting architects—not associated architects as was the case for the fieldhouse and chemistry building projects.

Watkin must have prepared a scheme with some rapidity for on 6 April, scarcely more than two weeks after the project was authorized, Cram wrote Watkin to approve the sketch plans and elevation sent him from Houston. Although suggesting several "improvements," Cram nonetheless assured Watkin that he had "no difficulty in approving [the drawings] in principle...as a matter of fact I like the building very much indeed. It ought to be extremely picturesque."³⁰³

As Watkin's presentation rendering [75] disclosed, the faculty club was indeed picturesque, although it exhibited a more studied resemblance to the earlier campus buildings than had the chemistry building. The club was located south of the administration building on the residential group side of the ring road. Its central motive—the tower and terrace configuration

75 Cohen House. William Ward
Watkin, 1927. Rendering of south
(court) elevation.

76 View of lounge looking east, c.
1927.

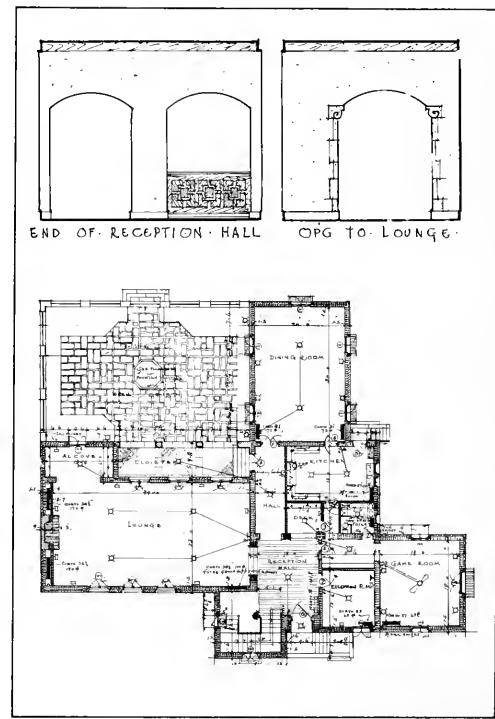
77 Detail of reception hall doorways
and first floor plan from the
construction drawings, undated, 1927.



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first used on the commons and South Hall—terminated the vista from the end of the administration building cloister.³⁰⁴ The ornamental pattern adopted for the exterior was derived from St. Luke of Stiria. The *cloisonné* base, the bands and fields of ornamented masonry, the *rinçage* molding framing the plaque over the front door and the brick and stone voussoirs of the arched openings on the north elevation were elements recalling the medieval Greek monastery. In the aperture above the front door was a pierced plate panel similar to that appearing on the second floor window of the Katholikon in plate seven of the Schultz and Barnsley monograph.

Asymmetrical massing articulated the disposition of interior spaces. From the front entrance circulation was distributed upward, to public rooms on either side and to the dining room in a wing to the rear. On the left, down several steps was the lounge [76], one of the most impressive interiors on the Rice campus. The room was enclosed beneath a polychromed wood ceiling, the kind of *artesonado* ceiling that Cram had written of so enthusiastically in his articles on Spanish architecture.³⁰⁵ Opposite the entrance to the lounge was a large hearth, overhung by a stone hood bearing the dedicatory inscription on a large walnut plaque designed and fabricated by Peter Mansbendel of Austin.³⁰⁶

Outside the lounge, in the ell between it and the dining room wing, lay an open patio encircled by *cloisonné* piers and an iron railing. A three-bay cloister shielded the lounge from the southern sun [75]. As on the west cloister of the chemistry building, the pier capitals were decorated with the likenesses of faculty members. Edward B. Arrants, a graduate of the Rice architecture department and an employee of Watkin, designed the roundels; Oswald J. Lassig executed the carving.³⁰⁷ Differentiating the Cohen House from other campus structures was its more concise massing, achieved through the articulation of the wall surface as an enveloping membrane, penetrated sparingly by openings. Less rigorous programmatic demands permitted a minimal fenestration treatment which in a classroom or laboratory would have caused ventilation problems. Watkin seemed especially to enjoy the *tour-de-force* achieved on the east wall of the lounge wing which was completely devoid of windows. With an inset chimney, it became a continuous surface modulated by stone moldings and horizontal brick courses. Emphasizing its planarity was a flat marble plaque flush-set in the gable. Watkin was later to characterize this approach as one of "geometric composition conforming in masses to the best modernism then being developed in the cities of Holland and Belgium" while allowing that "it was still entirely possible to hold a consistency with the elements of Romanesque architecture set up in the original buildings of the Institute."³⁰⁸

The brick, concrete and hollow tile building was constructed by the Houston branch of Thomas T. Hopper Company of New York, which was awarded a general contract for \$71,545.³⁰⁹ George Cohen was involved in every facet of the planning and construction of the building, even traveling to Chicago with Watkin to select furniture for the club.³¹⁰ On 25 November 1927 Cohen House was dedicated, although it was not

entirely finished until early 1928. Only ten months had elapsed between Cohen's benefaction and the completion of the faculty club as the institute's first externally donated building.³¹¹

The last item of new construction on the Rice campus involving Cram and Ferguson was the Founder's Memorial, a seated bronze figure of William M. Rice mounted on a Texas granite pedestal containing Rice's ashes [77]. The earliest mention of a Rice memorial had been in connection with the president's house project, when sketches were submitted in October 1923, supplemented by an additional sketch in February 1924.³¹² None of these drawings survives, but in a letter of 23 December 1925, Ralph Adams Cram reminded President Lovett of the "magnificent 'shrine' sketches" prepared several years earlier.³¹³ This particular piece of correspondence was the next in a chain of letters stretching over several years during which the proposed monument was considered.



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The purpose of Cram's letter was to suggest "the right man to do the work" that is, modeling a bronze seated statue of Rice.³¹⁴ Cram named several men: Daniel Chester French ("the greatest sculptor in America, but I am not sure whether he would undertake anything at this time"), A. Stirling Calder, Lee Lawrie ("He has done an immense amount for Mr. Goodhue, who would have no one else touch his sculpture"), and two Englishmen, Gerome Brush and John Angel. Angel had just come to the United States to work on the Cathedral of St. John the Divine for which Cram had been consulting architect since 1911. Cram advised the president that Angel was, "in my opinion, one of the most brilliant men working in sculpture today."³¹⁵

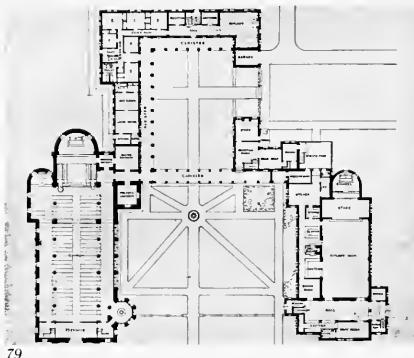
Lovett's correspondence file contains no more references to the project until December 1926, when he again consulted Cram. Lovett asked if Cram did not think Calder too old; moreover, there was a problem with the board: "I am morally certain that the Trustees will shy completely away from the Englishmen."³¹⁶ Cram countered the seeming objection: "I do not, of course, sympathize with the feeling that there would be an impropriety in employing an artist of English birth....I think the question is simply of getting the best available man. Mr. Angel is, I think, such a man."³¹⁷ Lovett conferred personally with Cram on a trip to the northeast in early January.³¹⁸ Cram then officially proposed that Angel be commissioned to prepare a one-half-scale maquette of a standing figure of William M. Rice and that Cram and Ferguson design the pedestal.³¹⁹ Cram had already settled on a concept for the pedestal: "Quite simple, perhaps with the four shields of the United States, Texas, Massachusetts, and the Rice Institute in medallions on the sides."³²⁰

One month later Cram was notified by the president that the board had asked him for a detailed estimate of expenditures.³²¹ In reply, Cram ventured an estimate of a total sum of \$20,000 for the project.³²² Cram and Ferguson thereafter prepared a sketch for the pedestal and asked Watkin to obtain cost figures on it for construction in both pink Texas granite and pink Tennessee marble.³²³

79 *Community house group (project).*
Cram and Ferguson and William Ward
Watkin, 1920. Site plan.

80 *Collegiate chapel (project).*
Perspective of west elevation, undated,
1920.

FOUNDER'S MEMORIAL



79



80

A gap of sixteen months in the correspondence indicates that the project was in abeyance, possibly because of the library and classroom building projects or possibly because of Cram's extended stay in Europe during the early part of 1928.³²⁴ Angel came to Houston in late 1927 to meet Lovett and inspect the campus.³²⁵ Watkin showed him three possible locations for the statue: to the east of the administration building, looking out to South Main Street; just west of the administration building facing the sallyport; and just beyond the first cross-axial road running from the mechanical laboratory to South Main Street. Watkin recommended this final position to Lovett, Angel and Cram.³²⁶ In July 1928 William M. Rice, Jr. and his brother, Benjamin Botts Rice (also a trustee of the institute), visited Angel's studio in New York and authorized studies for a seated statue of their uncle.³²⁷

On 28 November 1928 the board of trustees appropriated \$25,000 for the memorial, commissioning Angel as sculptor and Cram and Ferguson as architects.³²⁸ Again a year-long period elapsed in which Angel must have commenced work on the statue. In November 1929 Cram and Ferguson prepared drawings and specifications for the pedestal which were forwarded to Houston.³²⁹ Bids were called for on 20 January 1930.³³⁰ In May, Angel dispatched the one-ton bronze figure from New York³³¹ and on 8 June 1930, as a part of the Rice Institute's fourteenth commencement, the statue was dedicated. In recognition of the occasion, Ralph Adams Cram was invited to deliver the commencement address.

Angel seems to have fashioned the statue's visage from a portrait of William M. Rice in the possession of the Rice Institute. A great coat enshrouding the figure's suit was draped in folds over the arm of a Greek *klismos*. The statue's right arm extended forward, holding an open book; its left arm overhung the side of the chair, clasping an unrolled bronze scroll bearing a reproduction of the general plan. The pink granite pedestal rose on a stylobate, above a bench encircling the monument. The pedestal was slightly battered in profile. At its top, the four corners were eroded by canted weathering, receding upward to a final chamfered stage on which the bronze base of the statue rested.

The front (east) elevation of the pedestal bore a relief carving of the academic seal of the Rice Institute, flanked by two torches, with Rice's name, life dates and a memorial inscription beneath. The other three elevations bore the seals of Massachusetts (south face), the United States (east face) and Texas (north face). The Founder's Memorial was located in what was referred to as the Court of Hedges³³² where it commanded a prospect of the administration building.

THE development of the precincts adjoining the Rice Institute during the 1920s complemented the progress of the campus itself [67]. Plans devised prior to World War I for the physical transformation of the institute's surroundings were actually implemented during the ensuing years. Beginning in 1917 live oak trees were planted in a double *allee* along either side of Main Boulevard from the art league's triangle all the way to the southeast corner of the Rice Institute's campus,³³³ a gesture which Will C. Hogg matched by paying for the planting of a double *allee* of live oaks along Outer Belt Drive in Hermann Park as a memorial to Houston soldiers killed in World War I.³³⁴ At the intersection of Main Boulevard and Outer Belt Drive, across from the residential group entrance to Rice, the next increment in this series of civic developments occurred, the community house and chapel for the Rice Institute.

The Reverend Harris Masterson, Jr., an Anglican priest involved in special ministries,³³⁵ had become disturbed at the lack of student facilities on the institute campus. Students not living in the dormitories had only the library in which to study; female students lacked even an adequate place to eat. Rice was still far enough from town that commuting was somewhat of a problem. Having once arrived on campus, town students found it inconvenient to return home during the day and resident students without automobiles had to ride the streetcar or hitchhike if they wanted to go into Houston. Therefore, in the fall of 1919 Masterson moved two wooden mess halls from Camp Logan, wartime training camp located in what later became Memorial Park, out to Main and Outer Belt, setting them down between the street car tracks and entrance number three.³³⁶ These became the "community house," providing a cafeteria, lounge rooms and spaces for

81 *Community house (Autry House).*

Perspective view from Main Street.

82 *Women's dormitory (project).*

Perspective view.



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meetings, amateur theatricals and dances. The following year Masterson commissioned Cram and Ferguson and William Ward Watkin to draw up a masterplan for the development of the community house site.

The masterplan [79], prepared between August and November 1920,³³⁷ called for a complex of three related buildings: a collegiate chapel [80], a community house (with attached living quarters for a rector and his family) [81] and a dormitory [82] for female students and nurses at the still-projected Hermann Hospital. Cram and Ferguson placed the chapel and community house to either side of a grassy close facing Main Boulevard; the ell-shaped dormitory wing ran back from the chapel towards the park to enclose a subsidiary quadrangle. Cloisters linked the various components of the scheme. The elevations of the community house and the dormitory were very similar to those of West Hall, incorporating a picturesque, asymmetrical massing arrangement and a mixture of materials. The chapel was more sober in composition consisting of a tall nave (flanked by low side aisles) which terminated in an apsidal return. An apsidal side chapel and an octagonal baptistry projected from either side of this simple prismatic enclosure. A staged bell tower marked the point of intersection between the chapel, the dormitory and the lateral cloister which connected them to the community house. The assemblage of borrowed elements in the chapel, as in the buildings constructed on the Rice campus in the 1920s, was less adventurous than that which Cram had attempted in the earliest structures.³³⁸

Father Masterson and his colleague, the Reverend Peter Gray Sears, then Rector of Christ Church, were able to persuade Mrs. Allie Kinsloe Autry, the widow of J.S. Cullinan's attorney, James L. Autry (whose children were both students at the Rice Institute), to provide \$50,000 for the immediate construction of the community house.³³⁹ Following the institute's sixth commencement on 5 June 1921 President Lovett, the commencement speaker, H. L. Willet, William Ward Watkin, James L. Autry, Jr., and other members of the institute proceeded across Main Boulevard to the construction site of the community house. Joined by Masterson and Sears, they participated in the blessing



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of the cornerstone of the new Autry House. Completed in the fall, it was dedicated on 6 November 1921. As constructed, Autry House represented a simplified version of the initial project. The exterior walls were coated with stucco. Sills were of exposed brick and stone was used sparingly for ornamental detail. The roof, as in most of the units of the residential group, was covered with red tile. Autry House was structured around a large common room enclosed beneath an exposed beam wood ceiling. This space was focused on a shallow stage which contained an apsidal alcove for use as a temporary chapel. Offices, a canteen, a serving line and kitchen, men's and women's lounges, a barber shop, press shop and a clergy apartment were grouped about the common room which, for the next twenty-eight years, was to function as the center of student life at Rice.

Watkin repeated this Italian vernacular theme in Ye Old College Inn, a restaurant built across Main Street from the fieldhouse in 1921.³⁴⁰ The two-story restaurant building and adjacent one-story dance pavilion were located amidst the trees along Harris Gully. Arched openings, stucco surfaces and clay tile roofs reiterated the familiar elements of the developing Main Boulevard Mediterranean style.

In the Jesse Wright Miller Memorial Theater, an outdoor theater for Hermann Park designed in 1921 and completed the following year, Watkin provided the "Greek theater" which the Rice Institute was never to acquire. Adopting a neoclassical theme, Watkin composed the theater as a monumental Doric proscenium flanked by Doric peristyles which terminated in blocky pavilions.³⁴¹

Simultaneously, Watkin undertook the planning and design of the Museum of Fine Arts to occupy the site which earlier had been donated to the art league by the Hermann Estate and J. S. Cullinan. In late 1921 or early 1922 Watkin was commissioned to design a museum and art study center which could be built in phases. Ralph Adams Cram was retained as consulting architect. Watkin projected a neoclassical block of two and one-half levels set behind an Ionic colonnade and flanked by two long wings, splayed to parallel the

EAST OF MAIN STREET

83 Aerial view of the Rice Institute campus looking north, 1940. Main Street extends from downtown (upper left) to campus (lower left) and Hermann Park (lower right). Shadyside appears just north of campus, the Museum of Fine Arts to the east of the traffic circle formed at the intersection of Main Street and Montrose Boulevard at the center of the photograph.



alignments of Main and Montrose as they converged on Kessler's traffic ellipse.³⁴²

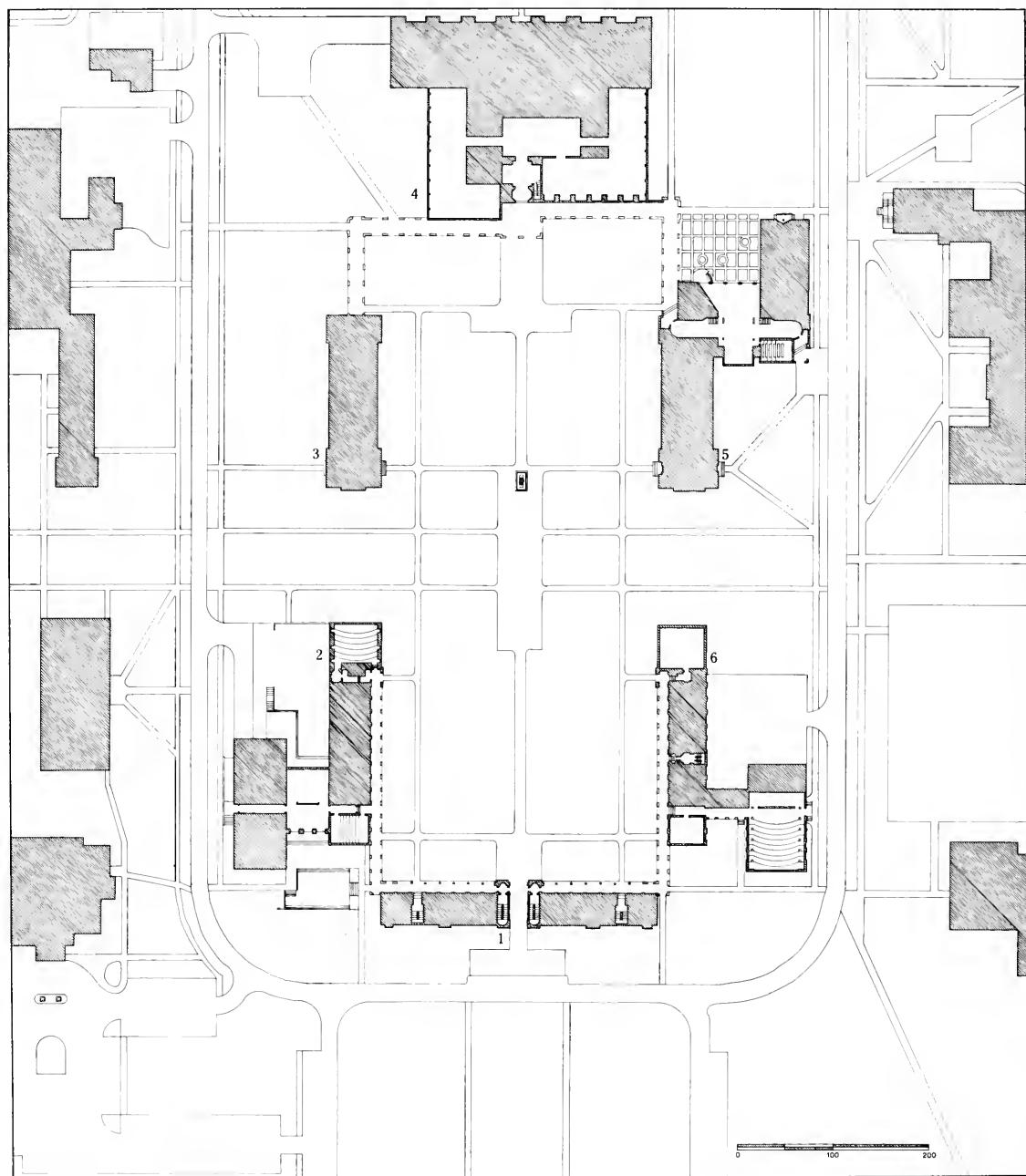
Clearly perceived was the museum's potential contribution to the developing architectural framework of the South End. In a brochure issued by the Art League in 1922 during its building fund campaign, one of the principal reasons cited for the creation of an "Art Center" was "to assist in the architectural development of South Main Street in harmony with Rice Institute, Hermann Park and Hospital, the Miller Memorial and Autry House — to help beautify Houston."³⁴³ As the league was unable to raise the full subscription of \$200,000 at once, only one-third of what was to have been the first phase of the museum was scheduled for immediate construction. By the time the initial portion of the building was completed in the spring of 1924, enough additional money had been raised to construct the rest of the first phase which was completed in 1926. To cement the informal but strong connections between the incipient museum and the institute, Watkin's colleague, James Chillman, Jr., was selected as the first director of the Museum of Fine Arts.³⁴⁴

The Hermann Hospital Estate responded to the prevailing Mediterranean theme as well. Planning was begun for the Hermann Hospital in 1922 by the Chicago architects Berlin and Swern (in association with Alfred C. Finn of Houston) who proposed a six-story block framed by towers and splayed wings, oriented for maximum light and ventilation.³⁴⁵ Construction began in 1923 and the hospital was placed in operation in 1925. Berlin and Swern's Mediterranean detail leaned more toward Spanish Renaissance than Italian, but the harmonization of material (stone sculptural trim, limestone facing and red pantile roofs) insinuated an interrelationship with the neighboring architecture.

The entire campaign of urban improvements in the South End [83] reflected the determination of a number of Houstonians to maintain the standards of planning and design introduced by the Rice Institute. George H. Hermann, Edwin B. Parker, Henry F. MacGregor, Joseph S. Cullinan, Will C. Hogg, George E. Kessler and William Ward Watkin all figured in this civic endeavor. Their vision of Houston was largely one of significant institutions dispersed in sylvan verdure surrounded by the artistically designed residences of gracious and cultivated families. The density and varied character of downtown Houston, surrounded by heterogeneous late nineteenth- and early twentieth-century neighborhoods, was opposed to this spacious, tastefully integrated environment—a model of the benefits to be achieved by rational city planning and efficient municipal regulation. The (voluntary) adoption of a uniform architectural style served to demonstrate further the advantages of enlightened cooperation. Cram's amalgamation of historic detail at Rice proved abundant enough to sustain several architectural sub-styles in what the *Houston Gargoyle* was to designate Houston's "Cradle of Culture." Through the phenomenon of geocultural analogy an appropriate expression of place was sought and maintained within a purposefully ordered environment.³⁴⁶

In a culmination of these efforts Mrs. Daphne Palmer Neville in 1927 donated \$100,000 for the construction and outfitting of collegiate chapel for the Rice Institute as a memorial to her brother, Edward Albert Palmer.³⁴⁷ Although sited in accord with Cram and Ferguson's masterplan for the community house site on Main Boulevard, the Palmer Memorial Chapel, as designed by Watkin, represented an even more abstract treatment of historic detail than had been proposed by the Boston office. Ornament was confined to selected locations and the massing was further simplified. The chapel was a single volume, layered to differentiate its sectional stratification into narthex, nave and chancel. Like Cohen House, it represented, in Watkin's view, a combination of "modern" composition and "traditional" detail.³⁴⁸ Retained from the earlier scheme was the notion of a tall, slender bell tower articulating the juncture of the connecting cloister with the chapel. For the interior Watkin repeated an arrangement derived from the late fifteenth century Church of Santa Maria dei Miracoli in Venice: the chancel and altar were raised over a high basement several feet above the level of the nave.³⁴⁹ Palmer Memorial Chapel was dedicated on 28 November 1927, three days after the faculty club's inauguration.

AN ARCHITECTURAL
EXPRESSION
OF PLACE



84 Plan of central campus as built, 1981. Enclosing the academic court are the administration building (1), 1912; Cleveland Sewall Hall (2), 1971; Razor Hall (3), 1961; Fondren Library (4), 1949, 1968; M.D. Anderson Hall (5), 1947, 1981, and the physics building (6), 1914.

DESPITE the institutional commitment to large-scale planning and eclectic architecture evident at Rice and other American universities, a variety of circumstances at the end of the 1920s decade conspired to undermine the privileged station which these notions enjoyed. The most forceful of these were the economic consequences of the Great Depression and the introduction of modern architecture. European modernism, in various forms, had been current in the United States since the mid-1920s, but only in its most conservative manifestations had it made much of an impact on American practice.³⁵⁰ Ralph Adams Cram loathed almost all modernism, seeing in it only a further extension of materialism and nihilism.³⁵¹ In his monastery and chapel of St. John the Evangelist in Cambridge (1928, 1936), he replicated the style of the residential group at Rice (its last unit completed before World War I).³⁵² The firm's Doheny Library [85] at the University of Southern California (completed in 1932 in collaboration with Samuel E. Lunden) might well have been the Rice Institute's library, so liberally did Cram and Ferguson borrow from the style evolved for the administration building twenty years earlier. Cram's War Memorial Chapel [102] for the American Military Cemetery at Belleau Wood in France (1929) and his Christ Church [103], New York (1934) also elaborated themes first developed in several of the firm's early buildings at Rice.³⁵³

Although William Ward Watkin shared some of Cram's reservations, he nonetheless welcomed the new architecture. In a series of essays first published in the *Rice Institute Pamphlet*, then reprinted in *Pencil Points*,³⁵⁴ Watkin reviewed recent trends in the modern architecture of Europe and the United States expressing a cautious optimism about its future achievements. His own predilection was clearly for the romantic nationalism of northern Europe and, at home, the experiments pursued by Bertram Grosvenor Goodhue in his last buildings and by Paul Philippe Cret, under whom Watkin had studied at the University of Pennsylvania. Cohen House and Palmer Chapel demonstrated the type of modernism with which Watkin felt most comfortable: an abstracted eclecticism transposed onto simple, forthrightly massed buildings where materials and texture were as important as applied decoration.

The effects which this conservative approach might have exerted on the Rice campus were confined largely to projects, for the Rice Institute passed through the depression in such straitened financial circumstances that even the limited construction program of the 1920s could no longer be sustained. Following the dedication of the Founder's Memorial, very little building was done on the campus. An addition to the kitchen of Cohen House, by Watkin, was built in 1929.³⁵⁵ In early 1930, Cram and Ferguson modified the top of the campanile, replacing the projecting tile roof (which had been struck by lightning) with a simple set-back stage. Watkin also undertook minor modifications to one of the residence halls at the same time.³⁵⁶ But in the eight years which followed, little construction activity transpired on the Rice campus.

As Houston recovered economic momentum in the middle- and late-1930s, several new building projects were contemplated. The most significant of these was a football stadium or, more precisely, an expansion of the seating capacity of the existing grandstands from nineteen thousand to thirty thousand seats. A committee of alumni and friends of the institute undertook a fund drive in the spring of 1938 to raise the \$160,000 necessary for the expansion; no money came directly from the university.³⁵⁷ Construction of the new stadium was begun in April and completed in time for the first game of the fall season.³⁵⁸ Watkin was the architect for this expansion. He extended the playing field slightly to the west, then wrapped it on three sides with tiers of seating. Although of steel frame construction, the exterior elevation of the stadium, which verged on University Boulevard, was cased in brick. High, narrow arched apertures—paired over the central entrance bay—were cut into the plane of the wall; wider arched openings occurred at ground level to accommodate access and egress. Decorative banding and the use of masonry-fabricated roundels stylistically linked the stadium with the existing campus architecture. However, its clear-cut geometrical composition and stepped massing provided a "modern" aspect, albeit of conservative character. A large parking lot (an acknowledgement of the problems associated with increased mobility) was also included in the stadium construction program.

In conjunction with this program, a small office wing was appended to the fieldhouse. In 1931 Watkin had added two large wings to either side of the building along the South Main Street elevation. These alterations were carried out in the same utilitarian manner of the original building.³⁵⁹ Another extension project (for which the institute was responsible) was the enlargement of the dining room in the commons. This entailed the addition of three bays to the east end of the building, projecting it towards East Hall. Watkin again was the architect for this project, completed one year after the stadium and fieldhouse additions in 1939.³⁶⁰ A set of undated drawings (also from the 1930s) survives to document Watkin's addition of a second story to the machine shop, between the mechanical laboratory and the power house. So carefully did he match the existing detail that this addition, containing two lecture halls, appears to be part of the original structure.

One project with which Watkin was involved made little progress towards realization, although some preliminary studies were done. In October 1937, the board of directors of the faculty club asked him to meet with them to discuss some items of routine maintenance.³⁶¹ According to the board's minutes, Watkin took the opportunity to present a scheme for constructing a two-story residential wing just west of Cohen House, accommodating unmarried faculty members and graduate fellows. His two floor plan sketches indicated a building formed externally like the other members of the residential group: a narrow range, bounded at one end by a blocky terminating bay. Linked by a breezeway to Cohen House, the "Fellows' Hall" contained eighteen two-person bedrooms, with several studies shown on either floor.

STRAITENED CIRCUMSTANCES

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The faculty club board investigated the proposal but ultimately concluded that it involved too great a financial risk for the club to undertake.³⁶²

For the 1938 *Campanile* (the Rice Institute student yearbook), architectural imagination was projected to the scale of the entire campus in renderings for "future" Rice buildings, illustrated on the annual's section division pages.³⁶³ Both Watkin's stadium and Cram and Ferguson's classroom building of 1927-1929 were included among this selection, which also contained a women's residential hall, a school of architecture, an engineering quadrangle, a student union, a gymnasium and—at the summit of Rice's architectural hierarchy—a vast and splendid commencement hall. According to the architect James Karl Dunaway who, as a graduate student in the department of architecture, executed the renderings, Watkin determined generalized plans, massing configurations and elevation treatments for the buildings which were then translated into wash perspectives.³⁶⁴

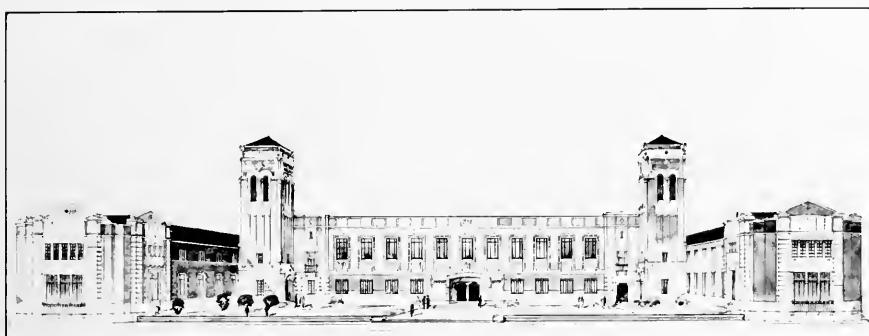
The elevations of these various buildings, composed as studies in planar advance and recession, were lined with ornamental banding and punctured by regularly spaced apertures. Sculptural decoration was sparingly used. The only exception to this subdued approach was the commencement hall, a fantastically tiled and marbled temple rising in solitude behind the great square, Watkin's tribute to the imagination of Bertram Grosvenor Goodhue. This last dream project aside, the other schemes were well within the pale of architectural respectability in 1938. But the vision of 1909-1910 was, thirty years later, no longer quite as compelling as it had once been. Cram's original program embodied a romantic idealism which by the late 1930s had acquired something of a period flavor, out of touch with contemporary events and attitudes.³⁶⁵

THE coming war deprived Watkin of what would have been his major contribution to the architecture of the campus, a new library. The somewhat fragmentary records of the president's office do not reveal precisely when and under what circumstances planning for a permanent library began, but it seems to have been occasioned by a \$200,000 bequest from the

estate of Eugene L. Bender endowing "a building or a fund" in memory of his parents, Lena and Charles Bender, Sr.³⁶⁶ By the fall of 1940 Edgar Odell Lovett was seeking advice on the planning and operation of university libraries. In December he visited Cram in Boston to discuss the project.³⁶⁷ The nature of their conversation is unclear but in January 1941, Cram and Ferguson sent Lovett a "tentative" site plan for "the proposed library group" [100] and Chester N. Godfrey, a partner in the firm, wrote the president that Cram had "prepared numerous studies for the proposed library building."³⁶⁸ Lovett hastily returned the site plan to Cram and Ferguson, reminding them that "on the occasion of my visit to Mr. Cram...I explained to him that I had no authority to proceed even tentatively with any undertaking at this time. Nor have I any such authority now."³⁶⁹ Godfrey remailed the site plan to Lovett, proposing that Cram and Ferguson forward Cram's sketches for the building with the understanding that the president would be under no obligation to the architects.³⁷⁰

In the meantime James A. Baker had commissioned Watkin to prepare an "architectural study" for the "library court."³⁷¹ Why Watkin was preferred to Cram and Ferguson is unknown, although his sketches seem to have been intended purely for study purposes.³⁷² Watkin combined the two buildings (the library and the Bender memorial building) into one structure—a U-shaped building configured about an open court. The library and Bender Hall (as labeled in his drawings) was situated to the west of the chemistry building, terminating the cross-axis which bisected the residential group. Although designated in the general plan as the graduate quadrangle, it must have become obvious that a library would be cramped if located alongside the great square in conjunction with the commencement hall where it originally was intended to go. As a comparison of the two site plans demonstrates, Cram and Ferguson chose the same location for their library group while projecting alternative different architectural resolutions.³⁷³

Like previous Rice buildings, the library and Bender Hall complex consisted of thin slabs, positioned to facilitate cross ventilation through major spaces. The



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library facilities were concentrated in the central block. One would have entered a foyer and moved toward the center of the building, where a flight of stairs ascended to the second floor delivery hall. There the card catalog and circulation desk were located. Situated above the main entrance was the principal reading room, a long, double-height space illuminated through arched windows on the south-facing elevation. Office and work spaces flanked both sides of the delivery hall behind which rose a five-level closed book stack. Bender Hall and its opposing wing (apparently intended for a later phase of construction) both housed special study and seminar rooms.

Watkin's architectural composition [86] was consistent with his previous campus work in its simple ornamental scheme and its functionally expressive disposition of massing and fenestration. Planar recession emphasized terminal conditions. The junctures between the three-level library block and the flanking two-story wings were articulated by two towers contrasting in height with the dominant horizontality of the front elevation. Although a superficial resemblance existed between Watkin's proposal and Cram and Ferguson's Doheny Library, the Rice design lacked the complexity of spatial composition and decorative detail of the California library. Watkin remained faithful to the characteristic elements of the Rice style—marble and brick *cloisonne* walls, stone and masonry banding, tile and marble plaques and panels, and pantile roofs—but the manipulation of this ensemble of elements remained distinctively his own.

Although the entry of the United States into World War II disrupted these plans, three years later—in the fall of 1944—they were revived. Watkin prepared another, somewhat reduced, scheme for the institute library in late 1945, but circumstances at the Rice Institute had changed significantly. Ralph Adams Cram and three members of the board of trustees, including James A. Baker and William M. Rice, Jr., died between 1941 and 1945. In 1946, three other members of the seven-person board retired, so that the policies of the institute were formulated by a virtually new group of trustees. Edgar Odell Lovett also retired in the spring of 1946 after a tenure of thirty-eight years as president of the

Rice Institute.³⁷⁴ Under the succeeding administration Watkin not only lost the commission for the library to the architects Staub and Rather,³⁷⁵ but he saw the building relocated to a position astride the central axis of the campus and designed in a manner which purposefully disadhered from the existing architecture [101].³⁷⁶ Watkin remained chairman of the architecture department until his death in 1952, but from 1946 onward his role in the planning of the institute campus was purely advisory and his advice was not always followed.³⁷⁷

In commissioning Staub and Rather to design the library and an adjacent classroom building, M.D. Anderson Hall, the trustees inaugurated a policy of hiring Rice architectural alumni for campus building projects.³⁷⁸ As with other universities where this policy was pursued, the results, in Cram's words, have "hardly held up to standard," at least with any consistency. Nonetheless, a desire to continue the formal characteristics of the pre-World War II buildings, and a surprising degree of adherence to the formal implications of the general plan, brought Rice University through the building boom of the late 1960s and early 1970s with far less damage to the intention of the originally envisioned order than was experienced on many American campuses. Despite the vicissitudes in critical estimation which the original architecture of the Rice campus experienced, Cram's recondite *tour de force* had become inseparably identified with the institution itself. The breadth of vision which those individuals responsible for the architecture of the Rice Institute possessed not only endowed a new university with the physical presence which its academic ambitions demanded, but shaped the aspect of an emerging city as well.

ALTHOUGH the buildings of the Rice Institute were initially received with critical approbation, they underwent the familiar process of less favorable assessment in the ensuing years before again receiving appreciative evaluations. Werner Hegemann and Elbert Peets included the general plan as an example of the best American university planning in *The American Vitruvius: An Architect's Handbook of Civic Art* (1922), and the architecture was noted by both Thomas E.

87 View of academic court looking east, 1980. Flanking the administration building are the physics building (left) and Cleveland Sewall Hall (right).



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Tallmadge in *The Story of Architecture in America* (1927) and G. H. Edgell in *The American Architecture of To-Day* (1928). Rice was of course included in the monographs, *The Work of Cram and Ferguson, Architects, Including the Work of Cram, Goodhue and Ferguson* (1929) and *Contemporary American Architects: Ralph Adams Cram, Cram and Ferguson* (1931). However, neither of the two reference works on American university building published at the time—Charles Z. Klauder and Herbert C. Wise's *College Architecture in America and Its Part in the Development of the Campus* (1929), or Jens Frederick Larson and Archie MacInnes Palmer's *Architectural Planning of the American College* (1933)—illustrated Cram Goodhue and Ferguson's work at Rice.³⁷⁹

This inattention turned to hostility by the middle 1930s as a modernist sensibility began to infiltrate the American architectural establishment. When Cram's autobiography was reviewed in the *Architectural Forum* in 1936, his explanation of the design method evolved for Rice was singled out for especially unfavorable attention: "...this stupendous flight into Never-Never Land."³⁸⁰ Inasmuch as the acceptance of modernism in the 1930s entailed the rejection of historic borrowing, of cultural symbolization and the values towards which Cram strove to build—the whole rationale for the design—the architecture of the Rice Institute came to be viewed as an arbitrarily conceived, perversely realized stage set. With the complete eclipse of eclectic architecture after World War II, any mention

of Cram's handiwork at Rice was certain to be accompanied by condescension or opprobrium.

Henry-Russell Hitchcock dismissed the school's architecture as "Byzantinoid" in his *Architecture, Nineteenth and Twentieth Centuries* (1958).³⁸¹ John Burkhart and Albert Bush-Brown were far more censorious in *The Architecture of America: A Social and Cultural History* (1961): "A shotgun marriage between Venice and Valladolid," "a pitiful variation on the Spanish Renaissance."³⁸² David G. McComb unwittingly adopted this judgement as authoritative in his book *Houston: The Bayou City* (1969). Yet, despite pronouncing the administration building "a monstrosity," he could not deny it "a certain puckish charm."³⁸³

In architectural circles these sentiments have come to seem narrow and reactionary. As early as 1957, the historian Frederick Gutheim surreptitiously proposed a reconsideration of non-modern nineteenth- and twentieth-century architectural tendencies in his centennial exhibition for the American Institute of Architects, "One Hundred Years of Architecture in America," in which Rice's administration building and physics building were included.³⁸⁴ Recent studies, such as Walter Kidney's *The Architecture of Choice: Eclecticism in America, 1880-1930* (1974)³⁸⁵ and Douglass Shand Tucci's *Ralph Adams Cram: American Medievalist* (1975)³⁸⁶ also display a more intelligent critical appraisal of Rice's architectural heritage.

88 Art and architecture group (project).

Louis I. Kahn, 1970. Model. To the

right is the Fondren Library and

beyond it, the academic court.

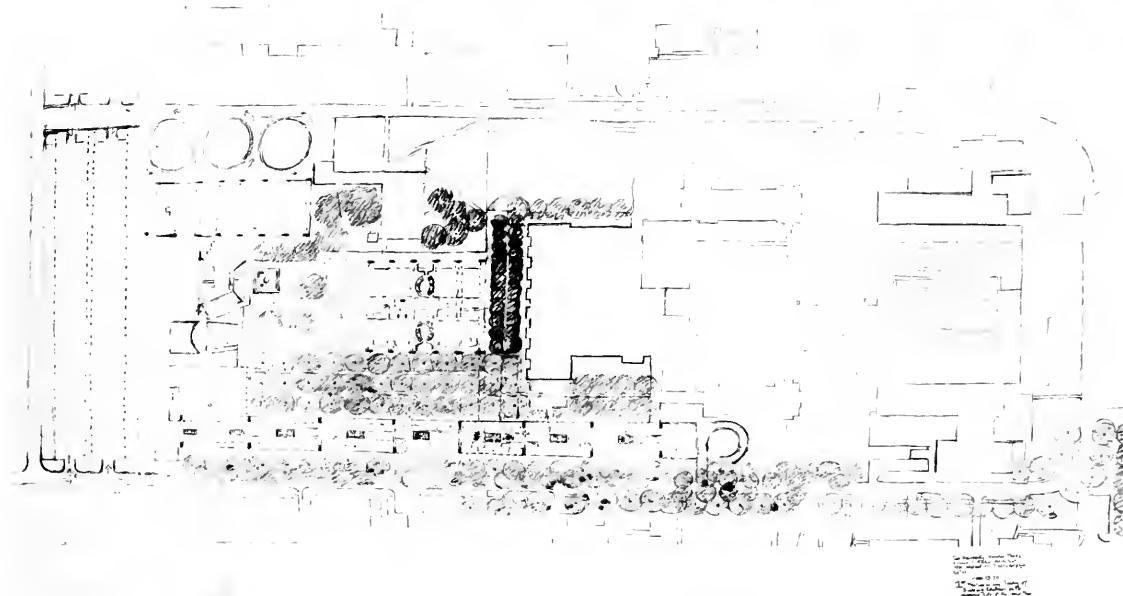
89 Art and architecture group.

Drawing of site plan by Louis I. Kahn,

29 June 1970.



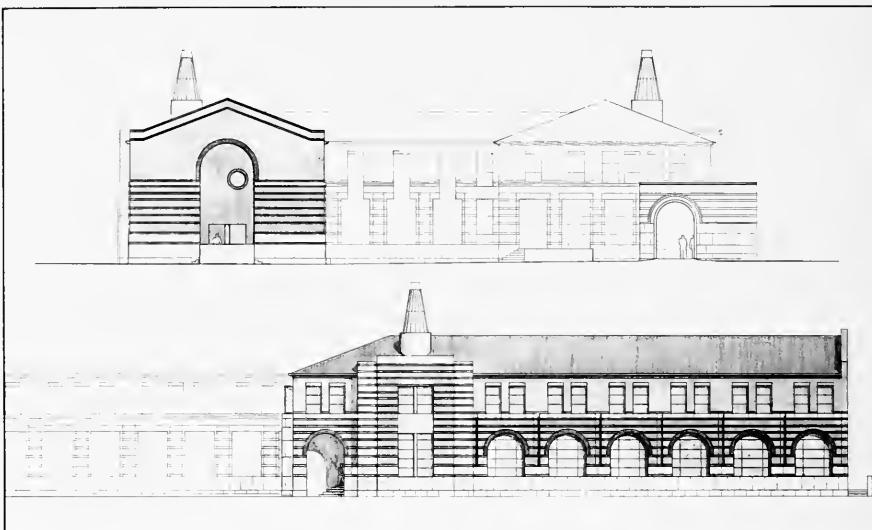
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90 Alterations and additions to M.D. Anderson Hall. James Stirling, Michael Wilford and Associates, architects; Robert Ambrose and Michael McEnany, associate architects, 1979-1981. West elevation (top) and north elevation (bottom), February 1980.

RELEVANCE OF THE GENERAL PLAN



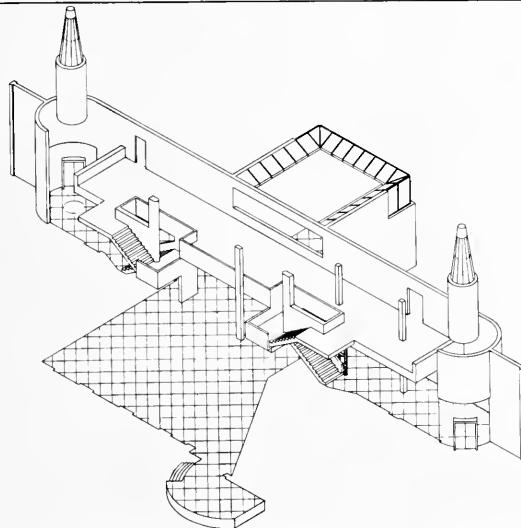
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APPRAISING Rice's architectural heritage—intelligently or otherwise—has figured to some extent in subsequent university building projects. This is most apparent in the central campus [84]. Staub, Rather and Howze defined the west end of the academic court with Rayzor Hall, completed in 1961. Six years later planning began for the last open building site in the court, next to the administration building and facing the physics building. This had been the location proposed for the classroom building project of 1927-1929. The new building was to be a memorial to Cleveland Sewall, built with funds donated by his widow Blanche Harding Sewall. Forty-four years earlier, Mrs. Sewall had commissioned Ralph Adams Cram to design the house she and her husband built in the Houston suburb of River Oaks. Her gift to Rice University specified that the elevations of Cleveland Sewall Hall correspond to those of the physics building. Consequently, the architects, Lloyd, Morgan and Jones, carefully duplicated the campus facade of the physics building in almost every respect, although exterior marble work was less elaborate and interior spaces were designed to meet contemporary standards. Nonetheless, Cleveland Sewall Hall [87] fitted in comfortably among the older buildings, despite the fact that it was actually much larger in area than its counterpart, the physics building. This was suppressed by burying two floors below ground and adding a third floor to the rear block, which replicated in plan the amphitheater block of the physics building. Ross M. Correll executed the decorative sculptural work on the exterior of Sewall Hall, which was completed in 1971.³⁸⁷

Cleveland Sewall Hall was intended to house a number of academic departments including the classrooms, studios and offices of the department of art and art

history, as well as the Institute for the Arts, an adjunct of the department established in early 1969 under the sponsorship of Dominique and John de Menil.³⁸⁸ However, in October 1969 the Philadelphia architect, Louis I. Kahn, was commissioned by the Board of Governors of Rice University to prepare schematic studies for an art center to contain the school of architecture, the department of art and art history and the Institute for the Arts. Facilities were also to be provided for the Shepherd School of Music, which had not yet been fully organized, and for the Rice Players, a student dramatic group. A two thousand five hundred-seat auditorium was also included in the rather loose set of programmatic requirements handed to the architect.³⁸⁹

Louis I. Kahn was the first architect of national prominence to be consulted by the university since the death of Ralph Adams Cram. A native of Estonia who had been raised in Philadelphia, he was trained at the University of Pennsylvania under William Ward Watkin's mentor, Paul Philippe Cret. Kahn first obtained critical recognition with his addition to the Yale University Art Gallery of 1953. However, it was the Richards Medical Research Building at the University of Pennsylvania of 1961 and the Salk Institute for Biological Studies at La Jolla, California of 1965 which gained him an international reputation. By 1969 he had large projects in design or under construction in Ahmedabad, Dacca, Tel-Aviv, Jerusalem and Venice. For the Kimbell Art Foundation in Fort Worth he was preparing plans for the Kimbell Art Museum, and earlier that year Yale University had commissioned him as architect for the Center for British Art.³⁹⁰ The chairman of Rice University's board of governors, H. Malcolm Lovett (the eldest son of Edgar Odell Lovett), had become aware of the library which Kahn was



designing for the Phillips Exeter Academy in Exeter, New Hampshire. Convinced that the university was in need of the services of an outstanding architect, Lovett secured for Kahn the art center commission.³⁹¹

Kahn's proposal, presented to the board's building committee in June 1970, envisioned a complex of buildings [88, 89] sited around what would have been the great square of the general plan. Although cut off from the campus by the Fondren Library (which assumed even more ominous proportions with the addition of a large rear extension, completed in 1968), the square retained some measure of its originally intended configuration with the triple *allees* of mature live oak trees which lined each side of the central green. In 1957-1958 the Rice Memorial Center had been rather ruthlessly inserted into the north flank of trees, but the south flank remained intact. Responding to the alignment of the rear block of Cleveland Sewall Hall, Kahn extended a long, thin, four-story building between a double file of street trees and the southern *allee*. This he assigned to art and architecture. Prefaced by a lecture theater behind Raynor Hall, the art and architecture building comprised seven rectangular units of equal dimensions into which classrooms, studios or offices could be inserted.

At the west end of the great square where the *allee* ceased, Kahn located two auditoriums both marked by deep, tall, independently-articulated stage houses. A low, two-story backstage building connected the stage houses of the auditoriums. A four-story art museum was proposed for the site of the Rice Memorial Center, which the architect wished to demolish. The Rice Memorial Chapel and cloister and the Robert H. Ray Memorial Court were to be retained, however. To the

south of the chapel, in the midst of the central green, a new university center was to be constructed. A depressed parking structure was indicated behind the auditorium.

Apparently Kahn had been asked to work with a projected budget of \$6 million; his estimate for the scheme he presented to the building committee was approximately \$40 million.³⁹² Following his meeting with the board's committee on 29 June 1970, the project was summarily dropped. In early March 1970, shortly after one of Kahn's site visits, the university had publicized the art center commission. But after the final meeting, no more publicity was forthcoming.³⁹³

If nothing else, Kahn's art center scheme demonstrated the continuing relevance of the general plan. Kahn showed that despite subsequent modifications, it was still possible to work within the plan's parameters. A similar spirit is evident in the most recent work of architecture to affect the central campus, an expansion and remodeling of M. D. Anderson Hall [90-91], designed between 1979 and 1980 by James Stirling, Michael Wilford and Associates of London. After analyzing both the general plan and the university's building history, the architects chose to shape the new wing as a counterpart of the physics amphitheater, thus adhering to the site configuration proposed in 1910. The elevations of the additional wing respected Anderson Hall's transitional facades, but the articulation of a new pedestrian concourse demonstrated that Stirling and Wilford had reassessed the architectural role of circulation in the general plan with a result that promised to be an imaginative renovation of one of Cram, Goodhue and Ferguson's principal themes of seven decades earlier.³⁹⁴



1. Julian Huxley, "Texas and Academe," *Cornhill Magazine*, 118 (July 1918), p. 59. Huxley, a member of the original institute faculty, was a research associate in biology.

2. This and the following information regarding William Marsh Rice is taken from Andrew Forest Muir (Sylvia Stallings Morris, editor), "William Marsh Rice and His Institute," *Rice University Studies*, 58, (Spring 1972).

3. Patrick had forged a will in which he was named as principal beneficiary.

4. Patrick was pardoned in 1912. Jones, who testified for the prosecution in the Patrick murder trial, was never tried.

5. See J. T. McCants, "Some Information Concerning The Rice Institute," Vol. 1 (of 2), typescript, 1955, p. 8. Woodson Research Center, Fondren Library, Rice University (hereafter, Woodson Research Center).

6. "Address of Edgar Odell Lovett—The Rice Institute," *Progressive Houston*, 2 (May 1910), p. 3.

7. Houston *Chronicle*, 5 March 1911, "Cornerstone's Laid for Rice Institute Building." Edgar Odell Lovett (hereafter EOL) to George R. Brown, 20 July 1944, Edgar Odell Lovett Papers, Woodson Research Center.

8. EOL to George R. Brown, 20 July 1944. As existing correspondence documents, the trustees had received inquiries from several architects regarding the design of the institute's buildings prior to the selection of a president. However, the board seems to have concluded that any consideration of buildings before the selection of a president was premature. See Benjamin Wistar Morris to E. Raphael, 3 August 1906, and Frederic P. Confort (apparently representing Howells and Stokes) to E. Raphael, both in the William M. Rice Institute—E. Raphael Papers, Woodson Research Center.

An account appearing in the 30 December 1906 issue of the Houston *Daily Post* reported that the architects of Stanford University—Shepley, Rutan and Coolidge of Boston—visited Houston in the summer of 1906 to confer with the trustees and had subsequently "submitted plans" for the Louisiana Street site. The same article also contained a vague description by Emanuel Raphael, secretary of the board and a member of the building committee appointed by James A. Baker in 1905, of a campus layout for the Louisiana Street tract, probably based as much on his recent tour of inspection of northeastern technical schools and libraries as any architectural proposals. However, this entire article is constantly qualified with the reservation that no definite plans would be formulated without the consent of a yet-to-be selected president. See "Rice Institute Next Year," *Houston Daily Post*, 30 December 1906. The minutes of the Board of Trustees for 1905 and 1906 make no reference to communications

with architects.

9. McCants, 1, pp. 20-21.

10. See the letter from H.O. Murfee to EOL, 8 March 1908, Lovett Papers, "...Have you won the site that will give you elbow room?"

11. McCants, 1, pp. 20-21.

12. William M. Rice Institute Minutes, 2 (12 May 1909), p. 178, Treasurer's Office, Rice University (hereafter, RI Minutes). The minutes give no indication of the contents of Lovett's letter or to whom it was sent. Within the region, there were only two examples of a "planned" university campus, Tulane in New Orleans and Washington in St. Louis. Although the president of Tulane had originally commissioned a masterplan from McKim, Mead and White in 1891, the commission eventually was awarded to Harrold and Andry of New Orleans. Their uptown campus was opened in 1894. Washington University's new campus was laid out by Cope and Stewardson of Philadelphia in 1900, with the initial buildings completed by 1904. Neither of these projects seems to have influenced Lovett. See "New Orleans," *American Architect and Building News*, 37 (23 July 1892), p. 50; and Guy Study, "Washington University, St. Louis, Missouri," *Architectural Record*, 37 (January 1915), p. 65.

13. Houston *Daily Post*, 18 July 1909, "Rice Institute." The committee consisted of Joseph F. Ames of Johns Hopkins, Edwin G. Conklin of Princeton, Theodore F. Richards of Harvard and Samuel W. Stratton of the University of Chicago and the National Bureau of Standards.

14. RI Minutes, 2 (15 July 1909), p. 172. According to the Houston *Daily Post*, 29 August 1909, "Rice Institute," the trustees "canvassed the country and invited a representative group of architects to send photographs and drawings of their work to Houston...The several architects were interviewed personally and some of their buildings were visited. The most enlightened counsel was sought among educators and architects. And finally, a great deal of hard thinking was done in Houston before the decision was reached." See James A. Baker to John M. Carrere, 13 July 1909 and Carrere to Baker, 19 July 1909 in the Lovett Papers. Also Morris to Raphael in the William M. Rice Institute—E. Raphael Papers; Woodrow Wilson to EOL, 19 June 1909 and Robert S. Lovett to EOL, 18 June 1909, Lovett Papers.

15. RI Minutes, 2 (4 August 1909), p. 178.

16. See Ralph Adams Cram, "Princeton Architecture," *American Architect*, 96 (21 July 1909), p. 21, and Harold Thorp Carswell, "The Graduate College of Princeton University," *American Architect*, 100 (25 October 1911), p. 165.

17. Cram, *My Life in Architecture* (Boston: Little, Brown & Co., 1936),

92 Administration building. West elevation, detail of relief, "Tablet to Science." Modeled by C. Percival Dietrich after Edwin Austin Abbey; executed by Oswald J. Lassig, 1912. The legend is from Aristotle.

pp.67-81; and William L. McDonald, *Dallas Rediscovered: A Photographic Chronicle of Urban Expansion 1870-1925* (Dallas: Dallas Historical Society, 1978), p. 115. For an encapsulated profile of both Cram and Goodhue as they were perceived by their contemporaries, see Thomas E. Tallmadge, *The Story of Architecture in America* (New York: W.W. Norton & Co., 1927), pp. 257-259.

18. For Sweet Briar, see *American Architect and Building News*, 77 (23 August 1902), plate section; for West Point, see Montgomery Schuyler, "The Work of Cram, Goodhue and Ferguson," *Architectural Record*, 29 (January 1911), p. 86. Much of this work is illustrated in *The Work of Cram and Ferguson, Architects, Including the Work of Cram, Goodhue and Ferguson* (New York: Pencil Points Press, Inc., 1929), plates 24, 37-40.

19. Cram, "Architectural Education in the United States," *The Gothic Quest* (Garden City: Doubleday, Page & Co., 1918—first published in 1907), pp. 339-340. The essay was written in 1900. The most comprehensive and sympathetic account of Cram's point of view is contained in Douglas Shand Tucci's *Church Building in Boston 1720-1970, With an Introduction to the Work of Ralph Adams Cram and the Boston Gothicists* (Concord: Rumford Press, 1974), p. 48.

20. RI Minutes, 2 (5 August 1909), p. 180.

21. Cram, Goodhue and Ferguson to EOL, 30 August 1909, William Ward Watkin Papers (Lovett Papers), Woodson Research Center (hereafter Watkin (Lovett) Papers). According to the cover letter, the memorandum "was laid out primarily for the information and guidance of Mr. Goodhue in taking up the study of the problem from his end." The campus site was too far out in the country to be connected to city services, hence the requirement for a power plant.

22. Its charter stipulated that the Rice Institute was to be "non-sectarian and non-partisan."

23. Cram, Goodhue and Ferguson (hereafter CGF) to EOL, 30 August 1909, Watkin (Lovett) Papers.

24. William Ward Watkin, "Architectural Traditions Appearing in the Earlier Buildings of the Rice Institute," p. 3. This is a typescript of a speech prepared by Watkin around 1950, now filed with the William Ward Watkin Papers. An excerpted version was printed in the *Slide Rule* (July 1953), p. 6 (hereafter, Watkin, "Architectural Traditions.") On the interoffice competition, see also Douglas Shand Tucci, *Ralph Adams Cram, American Mediaevalist* (Boston: Boston Public Library, 1975), pp. 28-30.

25. CGF to EOL, 30 August 1909.

26. Cram, "Princeton Architecture," p. 22.

93 Administration building, West elevation, detail of relief, "Tablet to Art." Modeled by C. Percival Dietsch after Edwin Austin Abbey; executed by Oswald J. Lassig, 1912. The legend is from Plotinus.

27. CGF to EOL, 3 September 1909, Watkin (Lovett) Papers.

28. Watkin, "Architectural Traditions," p. 5. "From the confused experiences arising from replanning at Princeton and elsewhere, he was enthusiastic about diagonal shortcuts from building to building."

29. CGF to EOL, 3 September 1909, Watkin (Lovett) Papers.

30. Ibid., 29 September 1909.

31. CGF to EOL, 9 September 1909, Watkin (Lovett) Papers.

32. Ibid., 29 September 1909.

33. Watkin, "Architectural Traditions," p. 5.

34. RI Minutes, 2 (18 October 1909), p. 181.

35. Cram to EOL, 24 November 1909, Watkin (Lovett) Papers.

36. RI Minutes, 2 (30 November 1909), p. 188.

37. Ibid., 2 (1 December 1909), p. 189.

38. Houston *Daily Post*, 5 December 1909, "Rice Institute Plans Accepted by Trustees."

39. CGF to EOL, 11 December 1909, Watkin (Lovett) Papers.

40. Ibid., 16 December 1909.

41. EOL to CGF, 17 December 1909, ibid. See Houston *Daily Post*, 5 April 1910, "W. Waldo, Engineer."

42. EOL to CGF, 13 January 1910, Watkin (Lovett) Papers.

43. Ibid., 13 January 1910.

44. CGF to EOL, 14 January 1910, ibid.

45. The letter and the drawings log maintained by the office of Cram, Goodhue and Ferguson both stated that this sketch is at the scale 1"=100', while the undated tracing paper sketch is at 1"=150'. However, it seems to accommodate Lovett's suggestion of 13 January 1910. The original drawings log is in the possession of Hoyle, Doran and Berry, Architects, Boston, Massachusetts, successor firm to Cram and Ferguson. Photocopies of the log are filed with the Watkin Papers.

46. EOL to CGF, 13 January 1910, Watkin (Lovett) Papers.

47. CGF to EOL, 18 January 1910, ibid.

48. Ibid., 28 January 1910. McCants 1, p. 22. The purchase was completed on 2 March 1910, one day after the trustees signed a contract with Cram, Goodhue and Ferguson to provide a general plan, construction documents for the initial buildings and a landscape plan.

49. EOL to CGF, 4 February 1910,

Watkin (Lovett) Papers.

50. Ibid.

51. CGF to EOL, 8 February 1910 and 9 February 1910, ibid.

52. Ibid., 9 February 1910.

53. CGF to EOL (telegram), 19 February 1910; CGF Drawings Log, "William Marsh Rice Institute, Houston, Texas," noted for 16 February 1910.

54. CGF to EOL, 12 March 1910, Watkin (Lovett) Papers.

55. Ibid., 5 March 1910. Possibly there may have been a reversion to the Goodhue presentation plan scheme.

56. EOL to CGF, 10 March 1910, ibid.

57. CGF to EOL, 10 March 1910, ibid.

58. EOL to CGF, 11 March 1910, ibid.

59. Ibid., 14 March 1910.

60. CGF to EOL, 17 March 1910, ibid.

61. Ibid., 22 March 1910.

62. EOL to CGF, 29 March 1910, ibid.

63. Ibid., 17 March 1910.

64. CGF to EOL, 5 July 1910, ibid.

65. Ibid., 26 July 1910.

66. Houston *Daily Post*, 5 December 1909. Compare to what has been identified as Cram's handwritten note, undated, presumably to EOL, Watkin (Lovett) Papers: "Round arched style based on the Southern development during the 11th and 12th centuries, of the architecture of the Byzantine and Carolingian epochs. It will bear some resemblance to the early mediaeval work of Italy, South France and North Spain together with lines borrowed from the East and also from the Spanish missions of the neighborhood."

"An attempt is being made to coordinate many of the Southern versions of architecture as distinguished from the northern Gothic, the whole being given a modern quality that will mark it distinctly as American, as American of the South rather than of the North, and finally as specifically scholastic, as Oxford and Cambridge and Princeton are scholastic. Through necessity the style will be wholly different."

67. Cram, "Have I a 'Philosophy of Design?'" *Pencil Points*, 13 (November 1932), p. 730.

68. Ibid., pp. 731-732.

69. Cram, *My Life in Architecture*, p. 126.

70. The characterization is Schuyler's. See his article, "Recent American Country Houses," *Architectural Record*, 32 (September 1912), p. 272. This attitude implicitly contrasts with that of a

number of contemporary American architects—Louis H. Sullivan, Frank Lloyd Wright and others in the Middle West and California—who also opposed the revival of classicism, but with an architecture which owed little to earlier forms of architecture.

71. Cram, *My Life in Architecture*, pp. 29-31.

72. Cram, "Style in American Architecture," *Architectural Record*, 32 (September 1913), p. 237.

73. This point of view perhaps was expressed most keenly in Cram's three wartime publications: *The Substance of Gothic* (1917), *The Nemesis of Mediocrity* (1918) and *Walled Towns* (1919), all published in Boston by Marshall Jones Company.

74. Cram, "On the Building of Churches," *The Gothic Quest*, pp. 178-179.

75. Plate section commentary, *Architectural Review*, 1 (August 1891), p. 68.

76. Olmsted's counsel, as well as Leland Stanford's interest in Spanish mission architecture, is documented in Paul V. Turner, "The Collaborative Design of Stanford University," and Karen Weitz, "Stanford and the California Missions," in *The Founder and the Architects: The Design of Stanford University* (Palo Alto: Department of Art, Stanford University, 1976), pp. 27 and 70.

77. The Peabody College in Nashville, Tennessee, by the New York firm of Ludlow and Peabody, was designed in the neo-Georgian style (1912), as was the new campus of Sophie Newcomb College in New Orleans by James Gamble Rogers (1918). SMU's southeastern counterpart, Emory University in Atlanta, was designed in a very free Italian Renaissance manner by Henry Hornbostel of Pittsburgh (1915-1916). Curiously, when Shepley, Rutan and Coolidge projected a masterplan for the University of Oklahoma at Norman in this same period (1910), they employed the collegiate Gothic style and a system of tightly-packed quadrangles.

78. Houston *Daily Post*, 29 August 1909.

79. Watkin, "Architectural Traditions," p. 9.

80. Cram, *My Life in Architecture*, p. 126.

81. Watkin, "Architectural Traditions," p. 11. Robert Weir Schultz was a prominent English Arts and Crafts architect and Barnsley an architect and member of the Art Worker's Guild. An interest in Byzantine architecture was current around the turn of the century in advanced English architectural circles. The year after W. R. Lethaby's book on Santa Sophia appeared (1894), John Francis Bentley commenced the design of the neo-Byzantine Westminster Cathedral in London, a major monument of the period. See Alastair Service, *Edwardian Architecture: A Handbook to Building Design in Britain, 1890-1914* (New York:



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Oxford University Press, 1977), pp. 80-83.

82. *Ibid.*, p. 12.

83. Cram, *The Substance of Gothic*, (Boston: Marshall Jones Company, 1917), p. 174. While Cram probably knew King's College Chapel at first hand, one can only speculate on his awareness of the Hawksmoor models stored there. These had been described, but not illustrated, in *The Architectural History of the University of Cambridge* by Robert Willis and edited by John Willis Clark. (Cambridge: Cambridge University Press, 1886), p. 559.

84. Cram, "Ecclesiastical Architecture," *The Brickbuilder*, 14 (June 1905), pp. 115, 117.

85. Watkin "Architectural Traditions," pp. 11-12.

86. CGF Drawings Log, "William Marsh Rice Institute, Houston, Texas," 18 January 1910. Presentation drawings of the administration building were made for the November 1909 conference with the trustees, but neither originals nor reproductions exist in the collections at Rice or at the Boston Public Library.

87. Watkin, "Architectural Traditions," p. 8.

88. This was illustrated in the commemorative monograph edited by Charles Harris Whitaker, *Bertrom Grosvenor Goodhue: Architect and Master of Many Arts* (New York: Press of the American Institute of Architects, 1925), plate 163.

89. Schuyler, "The Work of Cram, Goodhue and Ferguson."

90. The CGF Drawings Log lists a "detail elevation" and a "perspective" as having been prepared by Watkin on 18 November 1909. No subsequent presentation material is listed prior to August 1910.

91. Schuyler, "The Work of Cram, Goodhue and Ferguson," p. 30.

92. EOL to CGF, 16 December 1909, Watkin (Lovett) Papers.

93. CGF to EOL, 24 December 1909, *ibid.*

94. *Ibid.*, 20 December 1909.

95. EOL to CGF, 16 December 1909, *ibid.*

96. *Ibid.*, 17 January 1910.

97. CGF to EOL, 28 January 1910, *ibid.*

98. *Ibid.*

99. EOL to CGF, 4 February 1910, *ibid.*

100. CGF to EOL, 8 February 1910, *ibid.*

101. *Ibid.*

102. *Ibid.*

103. *Ibid.*, 12 February 1910.

104. *Ibid.*, 5 March 1910.

105. EOL to CGF, 10 March 1910, *ibid.*

106. *Ibid.*

107. *Ibid.*, 16 March 1910.

108. CGF to EOL, 17 March 1910, *ibid.*

109. *Ibid.*, 22 March 1910

110. *Ibid.*, 4 April 1910.

111. *Ibid.*, 10 March 1910.

112. EOL to CGF, 4 February 1910, *ibid.*

113. Lovett expressed this reservation in a memorandum on the campus plan and buildings sent to Charles W. Eliot, 23 September 1910, Watkin (Lovett) Papers.

114. CGF to EOL, 17 March 1910, *ibid.*

115. *Ibid.*, 9 April 1910.

116. *Ibid.*, 1 April 1910.

117. F. Carrington Weems to CGF, 26 February 1910, *ibid.*, and letter of 31 March 1910, now lost, but referred to in CGF to EOL, 5 April 1910, *ibid.*; also Lovett Papers, "Construction Records." The color-material combination was not settled upon until after the general contract for the administration building was awarded. The specifications called for pink Texas granite, white Texas limestone, and salmon colored brick with white Oolitic limestone trim. The contract between the Rice Institute and the general contractor amended this combination, substituting pink Tennessee marble for the two kinds of limestone, and Enfield brick for the salmon colored brick. As constructed, the administration building was faced with Ozark marble and a pink, Houston-made brick. Only the use of pink Texas granite was retained as originally specified. See "Administration Building," William M. Rice Institute, Houston, Texas: Specifications for Excavation," Lovett Papers, "Construction Records;" RI Minutes 2 (27 June 1910), p. 227; contract between the William M. Rice Institute and William Miller and Sons Company, Lovett Papers, "Construction Records."

118. CGF to EOL, 10 May 1910, Watkin (Lovett) Papers.

119. *Ibid.*, 30 April 1910.

120. *Ibid.*, 10 May 1910.

121. *Ibid.*, 20 May 1910.

122. Contract between the William M. Rice Institute and William Miller and Sons Company, Lovett Papers, "Construction Records."

123. CGF to EOL, 30 August 1909, Watkin (Lovett) Papers.

124. EOL to CGF, 16 December 1909, *ibid.*

125. CGF to EOL, 28 January 1910, *ibid.*

126. *Ibid.*, 16 February 1910.

127. F. Carrington Weems to EOL, 21 February 1910, *ibid.*

128. CGF to EOL, 31 May 1910, *ibid.*

129. *Ibid.*, 20 May 1910.

130. *Ibid.*, 7 June 1910.

131. *Ibid.*, 16-17 August 1910.

132. *Ibid.*, 19 September 1910.

133. Watkin's rendering is not dated and there is no reference to it on the CGF Drawings Log. Hoyle's was done in the fall of 1910. See CGF to EOL, 19 September 1910; and CGF to EOL, 21 November 1910, Watkin (Lovett) Papers.

134. CGF Drawings Log, "William M. Rice Institute, Houston, Texas," 1 January 1910 and 11-12 January 1910; also CGF to EOL, 12 January 1910, Watkin (Lovett) Papers.

135. CGF to EOL, 24 January 1910, Watkin (Lovett) Papers.

136. EOL to CGF, 4 February 1910, *ibid.*

137. CGF to EOL, 9 February 1910, *ibid.*

138. EOL to CGF, 10 March 1910, *ibid.*

139. *Ibid.*

140. CGF to EOL, 10 May 1910, *ibid.*

141. *Ibid.*, 21 November 1910.

142. *Ibid.*, 30 August 1909.

143. *Ibid.*, 28 January 1910.

144. *Ibid.*, 10 March 1910.

145. *Ibid.*, 14 March 1910.

146. *Ibid.*, 17 March 1910.

147. *Ibid.*, 22 March 1910.

148. EOL to CGF, 29 March 1910, *ibid.*

149. CGF to EOL, 4 April 1910, *ibid.*, "...no extension of this wing would ever be contemplated." And yet, the general plan shows the residential quadrangles closed by a connecting link between dormitory and dining hall.

150. *Ibid.*, 10 May 1910.

151. *Ibid.*, 21 November 1910.

152. CGF, 28 July 1911; and CGF drawings log, "Administration Building, William M. Rice Institute, Houston, Texas."

153. CGF to EOL, 22 September 1911, Watkin (Lovett) Papers.



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154. RI Minutes, 2 (18 October 1911), p. 286.

155. CGF to EOL, 7-8 December 1909, Watkin (Lovett) Papers.

156. Ibid., 27 December 1909 and 11 July 1910.

157. CGF (Watkin) to EOL, 9 August 1910, *ibid.*; also William Ward Watkin, "Materials of Construction Used in Rice Institute Work," *Southern Architectural Review*, 1 (November 1910), p. 115.

158. CGF (Watkin) to EOL, 14 June 1910, Watkin (Lovett) Papers.

159. CGF to EOL, 20 July 1910, *ibid.*

160. Watkin Papers, Folio 1/5-6 of construction progress photos.

161. Watkin, "Materials of Construction Used in Rice Institute Work."

162. CGF to EOL, 4 January 1911, Watkin (Lovett) Papers.

163. *Ibid.*, 1 April 1910 and 10 May 1910.

164. *Ibid.*, 4 January 1911.

165. The correspondence declines in quantity after December 1910, and it is uncertain when the Enfield Pottery and Tile Company forfeited the contract. See Watkin, "Materials of Construction Used in Rice Institute Work," p. 115.

166. Watkin Papers, Folio 1/48-49.

167. The academic seal was designed by Pierre de Chaignon la Rose, a Cambridge herald engaged upon Cram's recommendation. See the correspondence between la Rose and Lovett, in the Lovett Papers, between November 1910 and February 1911.

168. Houston *Chronicle*, 5 March 1911, "Cornerstone Is Laid for Rice Institute Building."

169. CGF to EOL, 7 December 1910, Watkin (Lovett) Papers.

170. Houston *Chronicle*, 5 March 1911.

171. Watkin Papers, Folio 1/74-77.

172. Houston *Chronicle*, 14 May 1911, "Rice Institute May Not Open So Early, but Work Is Advancing."

173. Watkin Papers, Folio 11/2.

174. Houston *Chronicle*, 8 June 1911, "Good Time Is Made in Institute Tunnels."

175. Houston *Daily Post*, 13 August 1911, "At Rice Institute;" Houston *Daily Post*, 10 October 1911, "The Rice Institute;" Houston *Daily Post*, 5 November 1911, "Pleasing Appearance."

176. S.V. Barteaux to William Miller and Sons Company, 28 October 1911; and WWW to EOL, 31 October 1911, Watkin (Lovett) Papers. J.T. McCants reported that William Miller and Sons Company "finally gave up the job and left it to their bonding company." The institute purchased the quarry to forestall further delays. McCants 1, p. 48.

177. Watkin Papers, Folio 1/84 and 91, and Folio II/3-4.

178. Houston *Daily Post*, 13 October 1912, "Artist Lassig." Lassig was instructed to do additional work of an unspecified nature on the administration building's cloister capitals. See CGF, "Order to Constructor," Contract 1G, 7 January 1913, Lovett Papers, "Construction Records."

179. Watkin Papers, Folio II/9.

180. *Ibid.*, Folio II/25.

181. *Ibid.*, Folio II/38-39.

182. *Ibid.*, Folio II/41-44.

183. *Ibid.*, Folio II/65-66.

184. *Ibid.*, W. Waldo, "Views of Flood of April 16th, 1912." Harris Gully had flooded in April 1911, prompting Waldo's report of 2 May 1911, in which he noted that the county had earlier turned down his proposal for improving the gully's capacity to handle sudden overflows. Waldo eventually dug a drainage ditch along the north property line of the campus to catch run-off water.

185. RI Minutes, 2 (31 May 1912), p. 310.

186. Construction progress photos show that the residential group probably was not entirely completed when the institute was inaugurated. See "Residential Hall for Men for the William M. Rice Institute, Houston, Texas," James Stewart and Company, October 1912, Woodson Research Center.

187. The potted plants bore an uncanny resemblance to those featured in the Cram, Goodhue and Ferguson presentation renderings.

188. As of 1980, the entrances have been reordered. The designation used here is that of the original system.

189. A second gallery was located on the third floor, off stairway number four.

190. Houston *Chronicle*, April 1912, "Proofs of Progress at the Rice Institute."

191. McCants 1, p. 48. In 1980, the privet hedges in the academic court were uprooted to economize on maintenance. The Italian cypress trees which Cram, Goodhue and Ferguson specified there already had given way to Australian tree ferns.

192. Watkin, "Architectural Development of the William M. Rice Institute, Houston, Texas," and "Materials of Construction Used in Rice Institute Work," *Southern Architectural Review*, 1 (November 1910), pp. 110 and 115.

193. Schuyler, "The Work of Cram, Goodhue and Ferguson," p. 30. "...Of these [the Boston designs] it does not yet appear what they shall be." Nevertheless, as mentioned earlier, the *Architectural Record* article published the general plan and a rendering of the administration building.

194. Cram, "Recent University Architecture in the United States," *Journal of the Royal Institute of British Architects*, Third Series, 19 (25 May 1912), pp. 502-503.

195. The *Southern Architect* article merely noted the recent opening of the institute. Jerome H. Farbar, "The Story of Progressive Houston," *Southern Architect and Building News*, 31 (June 1913), p. 19.

196. Rice Institute, Cram, Goodhue and Ferguson, Architects," *Western Architect*, 19 (February 1913), p. 20.

197. "William M. Rice Institute, Houston, Texas," *American Architect*, 102 (11 December 1912), pp. 207-208.

198. Franz Winkler, "The Administration Building of the Rice Institute, Houston, Texas," *Brickbuilder*, 21 (December 1912), pp. 321-324.

199. See Schuyler, *American Architecture and Other Writings*, a collection of essays edited by William H. Jordy and Ralph Coe (Cambridge: Belknap Press of the Harvard University Press, 1961). Two essays reprinted in Volume 2, "A Long-Felt Want," and "Architecture Made Easy," satirize the taste for neoclassical design. Jordy considers the impact of the classical revival on Schuyler's criticism in the introduction, in which Cram, Goodhue and Ferguson are curiously classed as "Beaux-Arts" architects (pp. 72-84).

200. Winkler, pp. 322 and 324.

201. EOL to George R. Brown, 20 July 1944, Lovett Papers. In late 1910 the president had been asked to consult with William T. Foster, who, like him, was just beginning to lay the institutional foundations for Reed College in Portland, Oregon. Lovett mailed Foster a copy of the *Southern Architectural Review* issue devoted to the Rice Institute project (EOL to William T. Foster, 11 January 1911, *ibid.*). He then advised Foster that should he wish to "talk over the architectural plans of your new institution with Dr. Ralph Adams Cram, head of the firm of Cram, Goodhue and Ferguson of Boston," he would be in San Francisco the next week (*ibid.*, 12 January 1911). Foster eventually retained Doyle, Patterson and Beach to plan Reed's campus, but the incident demonstrated Lovett's confidence in the Cram firm. See also "Reed College, Portland, Oregon," *American Architect*, 106 (8 July 1914), plate section.

Shortly thereafter, the president had another opportunity to recommend the services of Cram, Goodhue and Ferguson under circumstances which elicited a frank, if rather rueful, estimate

96 *Administration building, East elevation, detail of cornerstone. The legend, from the Praeparatio Evangelica of Eusebius of Caesarea, reads: "Rather, said Democritus, 'would I discover the cause of one fact, than become King of the Persians."*



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of Cram's persuasiveness. Since 1909, Lovett had been a member of the board of trustees of the Marion Institute in Marion, Alabama, an old but struggling preparatory school directed by a former Virginia classmate and fellow astronomer, Hopson Owen Murfee. H.O. Murfee's ambitions included an expansion of the school's campus and construction of five new buildings, and he prevailed upon Lovett to ask Cram to draw up a general plan (H.O. Murfee to EOL, 25 February 1911 and 3 March 1911, Lovett Papers). Cram, Goodhue and Ferguson prepared several schemes for the Marion Institute and Murfee chose the one he thought best suited to his purposes. But Lovett warned his friend to beware of Cram's suggestions: "You will have to hold a pretty stiff rein on him, however, or he will run away with the whole proposition. You will also find that he has a good many specious arguments up his sleeve which possess a common property of making fifty thousand dollars look like thirty cents." (EOL to H.O. Murfee, 5 April 1911, *ibid.*) It is not clear from the correspondence whether Cram, Goodhue and Ferguson actually realized any buildings at the Marion Institute.

202. Honore Mereu, "Italian Cities XII, Bologna," *American Architect and Building News*, 70 (20 October 1900), p. 20. The principal corners of the Doge's Palace in Venice are articulated with slender banded colonnettes supporting tabernacles [106]. Visually these are even more closely related to the administration building than is S. Giacomo Maggiore.

203. Mereu, "Italian Cities: XV, Ravenna," *American Architect and Building News*, 74 (2 November 1901), plate section.

204. Watkin, "Architectural Traditions," p. 12.

205. George Edmund Street, *Brick and Marble of the Middle Ages: Notes of Tours in the North of Italy* (London: John Murray, 1874), p. 217.

206. An illustration of this type of construction is contained in Alex Boethius and J.B. Ward-Perkins, *Etruscan and Roman Architecture* (Baltimore: Penguin Books, 1970), plate 126.

207. These consisted of two hotels, two churches and a house designed and built between 1885 and 1887. In 1909 and 1910, this architecture twice was republished: in "A Letter from Thomas Hastings, F.A.I.A. Reminiscent of the Early Works of Messrs. Carrere and Hastings, Architects," *American Architect*, 96 (7 July 1909), pp. 3-4 and plate section; and "The Work of Messrs. Carrere and Hastings," *Architectural Record*, 27 (January 1910), pp. 1-120. See also Carl W. Condit, "The Pioneer Concrete Buildings of St. Augustine," *Progressive Architecture*, 52 (September 1971), pp. 128-133.

208. Cram, "The Influence of the French School on American Architecture," *American Architect and Building News*,

66 (25 November 1899), pp. 651-652.

209. CGF to EOL, 20 May 1910. See also "Recent Collegiate Architecture," *Brickbuilder*, 23 (November 1914), p. 259, and *The Work of Cram and Ferguson, Architects*, plates 285-289.

210. Watkin, "Architectural Traditions," pp. 11-12.

211. This feature also was used on a number of later Cram and Ferguson buildings, such as Stetson Hall at Williams College and the Houston Public Library. See "Stetson Hall—The Williams College Library," *Architecture*, 48 (August 1923), pp. 256-264, and Drexel Turner, *Lyceum to Landmark: The Julia Ideson Building of the Houston Public Library* (Houston: Rice University School of Architecture, 1979).

212. The technique was already apparent in Goodhue's Rice auditorium design and in much of his neo-Gothic architecture: the buildings at West Point, the First Baptist Church in Pittsburgh, South Church and St. Vincent Ferrer in New York and the Baltimore cathedral project. After Goodhue broke with Cram and Ferguson at the end of 1913, it was, in his late work (the Nebraska State Capitol, the Liberty Memorial project, the Los Angeles Public Library and the Chicago Tribune competition entry), to provide a point of departure from overt historic reference by subordinating sculptural detail to a forceful (and abstractly sculptural) articulation of planar massing, in what came to be considered a viable and non-derivative modern style. See *Bertram Grosvenor Goodhue: Architect and Master of Many Arts* for illustrations of these projects.

213. Jerome H. Farbar, "Rice Institute Building," *Manufacturers' Record* (14 November 1912). Because only sporadic correspondence exists after 1911, it is impossible to follow the design and construction of subsequent campus buildings in the same detail as that of the initial structures.

214. RI Minutes, 3 (9 July 1913), pp. 12-21: "Physics Laboratory and Amphitheater for Rice Institute," *Manufacturers' Record* (30 October 1913); and Watkin Papers, Folio III/1-2.

215. Watkin Papers, Folio III/143.

216. Houston *Daily Post*, 9 December 1914, "Lecture to Open Physics Building."

217. Watkin's memoir was written forty years after the physics building was planned. Although he had the Lovett-Cram, Goodhue and Ferguson correspondence in his possession, he may not have checked back to find that the placement partly resulted from previous decisions as to the construction and use of wings to the administration building. Watkin, "Architectural Traditions," pp. 13-14.

218. The ornamental tile work incorporated in the physics building was executed by the Pewabic Pottery Com-

pany of Detroit, probably under the direction of Mary Chase Perry. Pewabic was also responsible for the work on the mechanical laboratory and on the first unit of the residential group for men. Despite the brick fiasco, the Enfield Pottery and Tile Company not only retained the contract to execute the ornamental tile work on the administration building, but was subsequently retained to execute the decorative tile work on East Hall and West Hall. See the CGF and Cram and Ferguson Drawings Logs for the various buildings.

219. Houston *Daily Post*, 9 December 1914, "Lecture to Open Physics Building."

220. RI Minutes, 3 (10 October 1916), p. 337.

221. A.C. Perry to EOL, 24 November 1911, Watkin (Lovett) Papers; *Manufacturers' Record* (30 October 1913); McCants 1, p. 47.

222. "Concerning Cram, Goodhue and Ferguson," *Architectural Record*, 34 (October 1913). "Notes and Comments," announcing the forthcoming dissolution of the firm, stated, "Mr. Cram and Mr. Ferguson will continue to maintain the Boston office and the Houston (Texas) office."

223. RI Minutes, 3 (21 November 1913), p. 43; also CGF Drawings Log, "Residential Hall Number 2, Rice Institute."

224. RI Minutes, 3 (5 December 1913), p. 46.

225. Houston *Daily Post*, 22 November 1913, "To Construct Dormitory." In the succeeding paragraph it was reported, "Scores of girl students have not entered the Institute because there is no dormitory for them as yet. Those who are in attendance at present are forced to obtain lodgings in the city. No announcement has yet been made of the intention of the board of directors to have a dormitory for girls erected."

226. James Chillman, "Architectural Ancestors," *Rice Alumni Magazine*, 1 (March 1963), p. 23.

227. George Kohfeldt, "The Architecture of the Rice Institute," typescript, 1925, Woodson Research Center, Fondren Library, Rice University. Kohfeldt's student essay contained this information, obtained in an interview with Alexander E. Hoyle, who was described as the "designer" of the Rice buildings. Since construction had been underway for some months by the time the article appeared, the *National Geographic* source is doubtful. But, by coincidence, this same article inspired Frost and Frost's architecture at the Texas College of Mines and Metallurgy (now the University of Texas at El Paso). See John Claude White, C.I.E., "Castles in the Air: Experiences and Journeys in Unknown Bhutan," *National Geographic Magazine*, 25 (April 1914), p. 365. See also Lloyd C. Engelbrecht, "Henry Frost: The Prairie School in the Southwest," *Prairie School Review*, 6 (Fourth quarter

1969), p. 29; and Dale L. Walker, "Shangri-la on the Border," *Texas Architect*, 27 (September/October 1977), p. 25.

228. Houston *Daily Post*, 6 December 1913, "Dormitory Contract Let at Rice Institute."

229. RI Minutes, 3 (17 November 1915 and 29 December 1915), pp. 198 and 212; also Cram and Ferguson (hereafter CF) Drawings Log, "Dormitory Number 3, William Marsh Rice Institute, Houston, Texas."

230. Houston *Daily Post*, 14 January 1916, "Contract for Dorm at Rice Institute Let;" also RI Minutes, 3 (17 November 1915), p. 198.

231. Houston *Daily Post*, 16 January 1916, "New Residential Hall at Rice Institute for Which Contract Was Recently Awarded."

232. *The Rice Institute* (New York: DeVinne Press, 1915 and 1921), p. 31 (and New York: Witherspoon and Co., Inc., 1926), p. 31, details the increase in enrollment.

233. A letter from Lovett to James A. Baker of 14 January 1921, contains a memorandum dealing with a "Residence Group for Men for the Graduate College of the Rice Institute." This seems to have been entertained as the gift of a potential unnamed donor. No architectural studies were made, however. See Lovett Papers, "Office Records."

234. CGF to EOL, 30 December 1912, Watkin (Lovett) Papers.

235. RI Minutes, 2 (29 May 1913), p. 385.

236. EOL to Westlake Construction Company, 18 March 1913, Lovett Papers, "Construction Records."

237. RI Minutes, 3 (1 July 1913), pp. 12-13 and 24.

238. CGF to EOL, 30 December 1912, Watkin (Lovett) Papers, paraphrased Watkin as reporting that: [the Lovetts] feel that unless [the rooms] can be of this size, prefer not to build at this time." Mr. and Mrs. Lovett were required to entertain on a scale that made them consider a large house imperative. Moreover, because of the distance from downtown Houston to the campus, a significant number of overnight guests could be expected.

239. McCants to Albert E. Touchet, 26 August 1913, *ibid.*

240. Watkin to Cram, 15 August 1915, Watkin Papers.

241. *ibid.*

242. CF Drawings Log, "President's House, William Marsh Rice Institute, Houston, Texas, New Scheme."

243. CF Drawings Log, (untitled): Specifications prepared for this project

stipulate that the house was to be completed by 20 August 1917. See CF "Specifications for President's House, William Marsh Rice Institute, Houston, Texas," in Lovett Papers, and CF to EOL, 18 January 1917, *ibid.*

244. RI Minutes, 2 (13 May 1908), p. 109.

245. Houston *Daily Post*, 9 January 1910, "Scenes in the Westmoreland Addition."

246. "Extending the Streetcar System," *Progressive Houston*, 2 (May 1910), unpaginated.

247. W. Waldo, "Views of Flood of 16 April 1912," and "Views of Rice Institute, 10 February 1913," Watkin Papers.

248. McComb, *Houston: The Bayou City*, p. 261. Both McComb and Marilyn McAdams Sibley document Rice's prominence as a "progressive" civic leader during this period. See McComb, pp. 136-140, and Sibley, *The Port of Houston, A History*, p. 133. Also Hubert Roussel, "Former Mayors," *Houston Gargoyle*, 1 (18 September 1928), p. 14.

249. Houston *Daily Post*, 27 March 1910, "To Create Park Commission."

250. Houston *Daily Post*, 11 February 1912, "Exhaustive Park Report;" Arthur Coleman Comey, *Houston: Tentative Plans for Its Development: Report to the Park Commission* (Boston: George H. Ellis Co., 1913), p. 39.

251. *Ibid.*, p. 38.

252. Houston *Daily Post*, 17 May 1914, "George Hermann Will Give 285 Acres to Houston for Park," and 7 June 1914, "Mass Meeting to Accept Park of George H. Hermann."

253. Houston *Daily Post*, 2 May 1915, "Houston to Have a Modern Park System." The most thorough biographical report on Kessler is contained in William H. Wilson, *The City Beautiful Movement in Kansas City* (Columbia: University of Missouri Press, 1964). Kessler, who grew up in Dallas, was trained in Germany and worked briefly with Frederick Law Olmsted before moving to the Middle West. His work included the Kansas City park system, the first section of the Baltimore suburb of Roland Park and the Louisiana Purchase Exposition in St. Louis. Kessler worked extensively in Texas during the first two-and-one-half decades of the century. See also Sarah Elizabeth Campbell, "George E. Kessler, Landscape Architect to City Planner: His Work in Texas Cities," M.A. Thesis, University of Texas, 1978.

254. See John O. King, *Joseph Stephen Cullinan: A Study of Leadership in the Texas Petroleum Industry, 1897-1937* (Nashville: Vanderbilt University Press, 1970), for biographical information on Cullinan, the founder of the Texas Company. Joseph S. Cullinan to George E. Kessler, 23 May 1914; Cullinan to Ben Campbell, 27 May 1914 and Lindsey H.

Dunn to Cullinan, 4 January 1915, Joseph Stephen Cullinan Papers, Houston Metropolitan Research Center, Houston Public Library.

255. W.W. Moore to Cullinan, 8 February 1916, Cullinan Papers.

256. Cullinan to Will C. Hogg, 7 April 1916, Cullinan Papers.

257. Cullinan to James L. Autry, 2 December 1915, James Lockhart Autry Papers, Woodson Research Center. Also Cullinan to Margaret Cullinan Wray, 18 April 1936, Cullinan Papers.

258. Cullinan to Robert Lee Blaffer, 7 April 1916; Cullinan to James P. Jamieson, 26 September 1916; H.A. Kipp to James P. Jamieson, 30 September 1916; Cullinan to Will C. Hogg, 24 October 1916, Cullinan Papers.

259. Will C. Hogg to Cullinan, 6 April 1916, Cullinan Papers.

260. Cullinan to Hogg, 7 April 1916. I am indebted to David Courtwright for bringing this correspondence to my attention. A more extensive history of the subdivision and its architecture is contained in Howard Barnstone, *The Architecture of John F. Staub: Houston and the South* (Austin: University of Texas Press, 1979), pp. 5-7.

261. James P. Jamieson to Cullinan, 4 May 1914 and 16 June 1916, Cullinan Papers.

262. In 1974, Mrs. Wiess presented her house to Rice University for use as a president's house.

263. Houston *Daily Post*, 20 August 1916, "Valuable Tract is Deeded to Art League for Museum."

264. Houston *Post Dispatch*, 13 April 1917, "League Dedicates Art Museum Site."

265. CF Drawings Log, "Trinity Church and Parish House, Houston, Texas." Trinity Church was begun in 1917 and dedicated in 1919. In 1921, Watkin added the Ralston Memorial Tower and, during the 1920s, carried out the decoration of the interior.

266. CF to Watkin, 13 November 1919, Watkin Papers.

267. Caldwell McFaddin and Clarence Waderman (editors), "The Field House," *Campante*, 6 (Houston: Rice Institute, 1921). The athletic field had been temporarily established at this location in 1912. See Houston *Daily Post*, 6 October 1912, "Finest Stadium in South."

268. CF Drawings Log, "Field House, William M. Rice Institute, Houston, Texas."

269. RI Minutes, 4 (22 May 1920), p. 145.

270. Watkin to EOL, 10 May 1920, Watkin Papers.

271. *Ibid.*; Watkin to Cram, 5 August



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1915, *ibid.* In 1922-1923 a one-story annex was constructed just west of the mechanical laboratory, for which a single, all-inclusive Cram and Ferguson drawing survives. This small, flat-roofed building was demolished to permit construction of the Ryon Laboratory. See RI Minutes 4 (8 November 1922).

272. Watkin to EOL, 4 June 1921, *ibid.*

273. CF Drawings Log, "Chemistry Building, Rice Institute, Houston, Texas."

274. See the *Brochure of the Work of William Ward Watkin, Architect* (ca. 1924), Woodson Research Center, Fondren Library, Rice University. Also, Watkin to EOL, 3 January 1923, Watkin Papers: "I wish to make you the following report concerning the sketches of the Chemistry Laboratory which have been carefully studied by Mr. Weiser and myself in a purely preliminary form over a period of many months. The sketches, as they have been handed to you, have been received by Mr. Cram, and his restudy of our elevation accompanies the sketches."

275. Watkin, "Architectural Traditions," pp. 14-15.

276. RI Minutes, 4 (19 July 1925), p. 349.

277. Watkin to EOL, 4 August 1923, Watkin Papers.

278. *Ibid.*, 17 December 1923.

279. *Ibid.*, 18 December 1923. A somewhat different version of this incident is related in Andrea K. Flynn, *Tom Tellepsen: Builder and Believer* (Salado: The Anson Jones Press, 1956), pp. 89-91.

280. Watkin to EOL, 6 April 1923, Watkin Papers.

281. *Ibid.*, 17 December 1923.

282. Watkin, "Architectural Traditions," p. 10. Watkin, of course, made this statement in the early 1950s. Possibly a degree of rivalry developed between Cram and Watkin after Watkin began receiving most of the Rice work. In his *Pencil Points* article, "Have I a Philosophy of Design?" Cram asserted that, in contrast to his early campus buildings, "the later work has hardly held up to standard" (p. 732). However, this was as overt as the competition ever became, if it existed at all.

283. Portions of these sculptural panels were not executed, as the arch was inadvertently constructed off center.

284. CF Drawings Log, "Rice Institute, President's House, Houston, Texas."

285. Cram to EOL, 5 October 1923, Lovett Papers.

286. RI Minutes, 4 (26 October 1923), p. 363.

287. *Ibid.*, 5 October 1923.

288. CF Drawings Log, "William Marsh Rice Memorial (Monument), Houston."

289. Cram to EOL, 25 October 1923, Watkin Papers.

290. EOL to William M. Rice, Jr., 15 November 1923, Lovett Papers.

291. Watkin to EOL, 13 November 1923, *ibid.* For an interior view of the Rice house, see Peter M. Rippe, "Harris County Heritage Society of Houston," *Antiques*, 108 (September 1975), pp. 492-494. In 1959 the house was purchased by the Harris County Heritage Society, moved to Sam Houston Park and restored by one of Watkin's former students, Harvin C. Moore. It is now a museum. See Harvin C. Moore, "The Restoration of the Nichols-Rice House," *Texas Architect*, 13 (February 1963), p. 4.

292. Watkin to EOL, 13 December 1923 (second letter), Watkin Papers; Cram to EOL, 25 October 1923, *ibid.*; CF to EOL, 22 October 1924, *ibid.*

293. In 1922, Cram had spent some time in Spain studying medieval architecture. He also was interested in Spanish vernacular domestic architecture and concluded a series of articles on the religious monuments of Spain with the essay "Domestic Architecture in Spain," *American Architect-Architectural Review*, 125 (13 April 1924), p. 371. His Houston house for Blanche Harding and Cleveland Sewall, designed between 1923 and 1925, gave full vent to this fascination with traditional Spanish houses. See *The Work of Cram and Ferguson, Architects*, plates 336-337, and "Tapley Restores Sewall House," *Architecture at Rice Newsletter*, 1 (Fall 1978), pp. 6-7.

294. Houston Press, 22 February 1924, "Plan 'Palace' for Dr. Lovett on Rice Campus."

295. See *Houston Post Dispatch*, 12 December 1924, "Captain James A. Baker, Original Rice Trustee, Asks Help for Institute." In an address detailing the financial limitations under which the institute operated, Baker told his audience, "We must have your help. When you make your will, stop to think a moment and then bequeath a portion of your money to Rice Institute." A memorandum from Baker to Lovett of 6 June 1932 shows that between 1922-1923 and 1931-1932 there were only four years in which revenues exceeded expenditures by more than \$100,000. In 1925-1926 and again in 1930-1931, the net annual income fell to less than \$50,000. See "Comparative Statement of Operations," Lovett Papers. After 1924, reports in the Houston newspapers concerning Rice's financial predicament became more frequent, but not until the mid 1940s were concerted steps taken to substantially increase the endowment.

296. Watkin to EOL, 30 October 1926, Watkin (Lovett) Papers.

297. CF Drawings Log, "Library, William M. Rice Institute, Houston, Texas;" Cram to EOL, 25 October 1923, Lovett Papers; and CF (Alexander Hoyle) to EOL, 14 December 1927, Lovett Papers.

298. RI Minutes, 5 (31 May 1928), p. 275.

299. Hoyle to EOL, 14 December 1927, Lovett Papers; and CF Drawings Log, "Classroom Building, William M. Rice Institute, Houston, Texas."

300. Hoyle to EOL, 14 December 1927, Lovett Papers.

301. According to a descriptive article appearing in a Houston newspaper, the alumni had subscribed \$50,000 towards the construction of the building by the end of 1929. See Elbert Turner, "University Is Hampered by Lack of Funds," *Houston Post Dispatch*, 31 December 1929.

302. RI Minutes, 5 (16 March and 21 March 1927), pp. 189-90; also Houston Press, 2 March 1927, "Rice Institute: Honors Aged Parents" and *Houston Post Dispatch*, 25 June 1927, "\$100,000 Robert and Agnes Cohen House for Rice." Loaning money for new construction was a standard method of investing the institute's funds. Trinity Church, Autry House and Palmer Chapel were all built with money borrowed from Rice.

303. Cram to Watkin, 6 April 1927, Watkin Papers. Lovett had hoped to travel to Boston to study the proposal with Cram. EOL to Cram, 30 March 1927, and Cram to EOL, 4 April 1927, both Lovett Papers.

304. Watkin had employed a similar device on the Casa de Manana in Sugar Land, designed the year before for W.T. Eldridge, Sr. See Peter C. Papademetriou (editor), *Houston: An Architectural Guide* (Houston: Houston Chapter, American Institute of Architects, 1972), p. 51.

305. Cram, "Domestic Architecture in Spain," p. 375.

306. Peter Mansbendel to Watkin, 29 September 1927 and 6 October 1927, Watkin Papers. On Mansbendel's work, see Peter Mansbendel: *A Swiss Wood Carver in Texas* (San Antonio: University of Texas Institute of Texan Cultures, 1977.).

307. Houston Chronicle, 28 August 1927, "Profiles to Be Features of Cohen House at Rice."

308. Watkin, "Architectural Traditions," pp. 15-16.

309. Thomas T. Hopper Company. Requisition, 2 August 1927, Watkin Papers.

310. Watkin to Newton and Hoyt, 23 July 1927, *ibid.*

311. Houston Post Dispatch, 25 November 1927, "Cohen House is Given to Rice, Old World Color."

312. CF Drawings Log, "William M. Rice Memorial (Monument), Houston, Texas;" Cram to EOL, 25 October 1923, Lovett Papers.

Lovett Papers.

313. *Ibid*, 23 December 1925.

314. *Ibid*.

315. *Ibid*.

316. EOL to Cram, 10 December 1926,
ibid.

317. Cram to EOL, 15 December 1926,
ibid.

318. *Ibid*, 4 January 1927.

319. *Ibid*, 10 January 1927.

320. *Ibid*.

321. EOL to Cram, 10 February 1927,
ibid.

322. Cram to EOL, 21 February 1927,
ibid.

323. Alexander E. Hoyle to Watkin, 28
February 1927, Watkin Papers.

324. Alexander E. Hoyle to EOL, 14
December 1927; EOL to CF, 31 January
1928, Lovett Papers.

325. A. B. Cohn to EOL, 9 December
1927, Lovett Papers.

326. Watkin to Cram, 18 June 1928,
Watkin Papers.

327. William M. Rice, Jr. to EOL, 26 July
1928, Lovett Papers.

328. RI Minutes, 5 (28 November 1928),
p. 285.

329. CF Drawings Log, "Memorial to
William M. Rice, Rice Institute, Houston,
Texas."

330. "Instructions to Bidders," 16
November 1930, Watkin Papers.

331. John Angel to EOL, 13 May 1930,
Lovett Papers.

332. *Houston Post Dispatch*, 8 June
1930, "Statue of Rice to Be Unveiled,"
Cram's commencement address was
published as "Beyond the Nemesis," in
his book *Convictions and Controversies*
(Boston: Marshall Jones Company,
1935), p. 197.

333. Watkin to Cram, 8 June 1928,
Watkin Papers.

334. H.A. Kipp to Cullinan, 4 January
1917, Cullinan Papers; also "Live Oak
Trees on Main Street Boulevard,"
Houston, 2 (April 1920), p. 6. *Houston
Chronicle*, 10 February 1957, "Memorial
Oaks Flourish Around Hermann Park."

335. William James Battle, *The Story of
All Saints' Chapel, Austin, Texas,
1900-1950* (Austin: All Saints' Chapel,
1951), pp. 26-30, 42.

336. The Episcopal Diocese of Texas ac-
quired this property in trade from the
City of Houston. R.W. Franklin, who had
been Charles Weber's attorney, was also

an official of the Diocese's property cor-
poration. He acquired, for the Diocese,
the triangle of property that Weber had
removed to in 1910, after the institute
bought the other half of the tract which
intruded into their campus. As this half
intruded into what became Hermann
Park, Franklin was able to convince the
city to take this property in exchange
for a block-sized lot between Main
Boulevard and the car tracks near Outer
Belt. See *Houston Post*, 20 February
1921, "First Unit of Great Community
Center Near Rice Institute Soon to Be
Under Construction," and McCants, 1
pp. 29-32.

337. CF Drawings Log, "Community
House Development, William M. Rice In-
stitute, Houston, Texas."

338. This restrained, stylized, north
Italian Romanesque manner was
employed by the Cram firm in such
other commissions of the 1920s as St.
Mary's Church, Detroit, the Presbyterian
churches in Jamestown, New York and
Tacoma, Washington, and Christ
Methodist Church, New York. One of
Goodhue's principal works, St. Bar-
tholomew's Church, New York, was in a
cognate neo-Byzantine style. See *The
Work of Cram and Ferguson, Architects*,
plates 144-153 and 234-238; *American
Architect*, 131 (5 January 1927), pp.
15-22; Alfred Tappan North (foreword),
*Contemporary American Architects:
Ralph Adams Cram, Cram and
Ferguson* (New York: Whittlesey House,
1931), p. 83; and *Bertram Grosvenor
Goodhue, Architect and Master of Many
Arts*, plates 165-169.

339. *Houston Post*, 20 February 1921,
"First Unit." The report noted that "The
plans were produced in the Boston of-
fice of Cram and Ferguson and were
designed to be in keeping with the
architecture at Rice, though the buildings
will not be placed on the campus."

340. *Houston Post*, 20 February 1921,
"Ye Old College Inn Added to City by
Rice."

341. *Houston Post*, 22 August 1921,
"Houston's \$40,000 Open Air Theater at
Hermann Park Will Soon Be a Reality,"
and 30 November 1922, "Open-Air
Theater Is Beautiful Structure."

342. *Houston Chronicle*, 13 April 1922,
"Elaborate Ceremonies Mark Filing of
Art League Records in Marker on Site of
Proposed Museum." At the ground
breaking Watkin noted, "This site lies at
the intersection of two great boulevards
leading from the business center of the
city and from the more developed
residential sections to this center of
public memorial, with all its promise for
civic beauty."

343. *The Houston Art Museum* (Houston:
Houston Art League, 1922), un-
paginated.

344. See Donnelley Erdman and Peter
C. Papademetriou, *The Museums of Fine
Arts: Fifty Years of Growth, 1922-1972*
(Houston: Rice University School of Ar-
chitecture, 1972). Chillman was a Rome

fellow whom Watkin had appointed to
the architecture faculty in 1916. He
served as director of the museum until
1953 and was a member of the Rice
faculty until his death in 1972.

345. *Houston Post Dispatch*, 2 August
1925, "Hermann Hospital Swings Into
Full Operation."

346. The tradition of planning and ar-
chitecture initiated with the Rice In-
stitute extended beyond the South End of
Houston. In November 1923, William
Ward Watkin was appointed associate
architect for the newly authorized
Texas Technological College, to be
located in the west Texas town of Lub-
bock. Although the Fort Worth ar-
chitects Sanguinet, Staats and Hedrick
were architects of record, Watkin was
responsible for the general plan of the
campus and the design of the college's
initial buildings. In his proposals, the in-
fluence of Goodhue's general plan study
for Rice was immediately apparent.
Watkin developed the campus plan
about the intersection of two axes: One
along the line of entrance from the city,
was terminated by the "Alamo group,"
an auditorium outflanked by two
laboratory buildings to create an open
plaza. The other defined a long
academic quadrangle contained be-
tween the opposed textile engineering
building and the administration building,
with unencumbered, park-like
grounds stretching beyond the latter
structure. The intersection of these axes
prompted a "great square." The quad-
rangle, bisected by a central water-
course bordered by rows of trees,
opened out into this space, as did the
main approach drive. As at Rice,
cloisters were distributed to intercon-
nect building groups, and trees, planted
in file, defined the principal routes of
circulation.

Architecturally, Watkin treated the ini-
tial buildings with Spanish Renaissance
detail, as he and Cram and Ferguson
had done with the Houston Public
Library, designed at the same time. The
administration building at Tech resem-
bled the administration building at Rice;
a long, narrow slab, pierced by a central
bay through which a sallyport was tun-
neled. But Watkin's eclecticism was
more circumspect than Cram's. Detail
acquired a certain period consistency
and composition was restrained. Watkin,
like his mentor, justified this stylistic
treatment in terms of cultural and
regional expression. A Houston
newspaper article reported that "this
group of buildings will be designed
somewhat after the order of early Texas
architecture and probably will
perpetrate many of the historic architec-
tural forms taken from the Texas mis-
sions." By 1924, the Spanish colonial
revival was sufficiently acceptable that
the prospect of "Mexican" architecture
aroused no protest from Texas college
authorities.

See Ruth Horn Evans, *The First Thirty
Years: A History of Texas Technological
College* (Lubbock: Texas Tech Press,
1956), pp. 6 and 189; *Houston Chronicle*,
14 September 1924, "School Will Be



101 Aerial view of central campus looking west, 1953. Counterclockwise from bottom: the administration building, 1912; the physics building, 1914; M.D. Anderson Hall, 1947; with Fondren Library, 1949, terminating the vista.



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(1948), the President's House (1950), and Wiess Hall (now Wiess College, 1950). They later designed Rayzor Hall (1961) and additions to Wiess College and the Fondren Library. Staub, who had studied under Cram at MIT, had done work for two of the newer board members, Harry C. Wiess and Harry C. Hanszen. Rather, a 1919 graduate of the architecture department, had done work for another of the new trustees, George R. Brown, and, from 1954 until 1968, served in various positions on the Rice Board of Governors. See Barnstone, *The Architecture of John F. Staub: Houston and the South*.

376. A "cooperative committee" of university libraries and their architects was formed late in 1944 to work together in devising building programs and plans for each of the institutions' new libraries under the direction of John E. Burchard, then director of libraries at MIT and an architect. In a report to the Rice trustees of 1 January 1946, Burchard pointedly discouraged the notion of siting the library on the cross axial location where Watkin wanted it placed, suggesting that the building should instead go in its present location. He also warned against "warping the functioning of the plan" in favor of symmetrical elevation and disparaged any attempt at replicating the style of the earlier buildings. See John E. Burchard, "Report to the Trustees of Rice Institute on the Proposed New Library Building," 1 January 1946, pp. 11, 31-32. Lovett Papers.

377. Watkin was consulting architect for the Fondren Library, Anderson Hall and the Abercrombie Laboratory. John F. Staub recalls, however, that he had little to do with the designs of any of these buildings. Watkin did prepare a scheme for the Abercrombie Laboratory that was significantly different from Staub and Rather's. See Watkin Papers.

378. Exceptions to this policy were the Autry Court and Gymnasium, designed by Jessen, Jessen, Millhouse and Greeven of Austin (1950) and a project for the Shepherd School of Music by W. Pope Barney of Philadelphia (1950).

379. Werner Hegemann and Elbert Peets, *The American Vitruvius: An Architect's Handbook of Civic Art* (New York: Architectural Book Publishing Company, 1922), pp. 115 and 125; Thomas E. Tallmadge, *The Story of Architecture in America* (New York: W. W. Norton & Company, Inc., 1927), p. 260; G. H. Edgell, *The American Architecture of To-day*, (New York: Charles Scribner's Sons, 1928), p. 176; *The Work of Cram and Ferguson, Architects*, plates 275-284; North, *Contemporary American Architects: Ralph Adams Cram, Cram and Ferguson*, pp. 29-34; Charles Z. Klauder and Herbert A. Wise, *College Architecture in America and Its Part in the Development of the Campus* (New York: Charles Scribner's Sons, 1929), pp. viii, xi; Jens Frederick Larson and Archie MacInnes Palmer, *Architectural Planning of the American College* (New York: McGraw-Hill Book Company, Inc., 1933).

380. "Books: *My Life in Architecture*," *Architectural Forum*, 64 (May 1936), pp. 25, 86 and 88.

381. Henry-Russell Hitchcock, *Architecture, Nineteenth and Twentieth Centuries* (Baltimore: Penguin Books, 1958), p. 401.

382. John Burchard and Albert Bush-Brown, *The Architecture of America: A Social and Cultural History* (Boston: Little, Brown & Company, 1961), pp. 287, 382.

383. McComb, *Houston: The Bayou City*, p. 148.

384. Frederick Gutheim, *One Hundred Years of Architecture in America*, (New York: Reinhold Publishing Corporation, 1957) p. 50.

385. Walter C. Kidney *The Architecture of Choice: Eclecticism in America* (New York: George Braziller, Inc., 1974), p. 40 and figure 96.

386. Tucci, *Ralph Adams Cram, American Mediævalist*, p. 20.

387. "Investment in Growth: Cleveland Sewall Hall," *Rice University Review*, 4 (Summer 1969), p. 8 and "Cleveland Sewall Hall Closes the Academic Quadrangle," *Rice University Review*, 6 (Fall 1971), pp. 8-11.

388. See Marguerite Johnston, "The Institute for the Arts Comes to Rice," *Rice University Review*, 6 (Summer 1971), pp. 6-11. The Institute for the Arts was responsible for building the Rice Museum (the Art Barn) in 1969 and the Rice Media Center in 1971, both designed by Howard Barnstone and Eugene Aubry. Although considered "temporary buildings" and sited far from other campus facilities, the museum and media center are two of the best works of architecture to be built at Rice since 1945. See "Machine Shop for Art," *Architectural Forum*, 131 (July/August 1969), p. 96.

389. Information about this project is rather tenuous. A diagram from the Kahn office blocking out square footage requirements for the various components of the art center and a handwritten note by Kahn give the most detailed accounts of the program for the center. See also the following correspondence filed in the Louis I. Kahn Collection at the University of Pennsylvania in Philadelphia: H. Malcolm Lovett to Louis I. Kahn, 21 October 1969; Frank E. Vandiver to Louis I. Kahn, 4 November 1969; and Louis I. Kahn to Frank E. Vandiver, 18 November 1969.

390. On Louis I. Kahn and his work, see Vincent Scully, Jr., *Louis I. Kahn*, (New York: George Braziller, 1962) and Romaldo Giurgola and Jaimini Mehta, *Louis I. Kahn*, (Boulder: Westview Press, Inc., 1975). In April 1967, Kahn spoke at Rice in the President's Lecture Series. His talk, as well as transcripts of two informal exchanges with students, are documented in Ann Mohler and Peter C.

Papademetriou, editors *Louis I. Kahn: Talks With Students* (Houston: Rice University School of Architecture, 1969). Kahn was also one of four lecturers who spoke in connection with the "Visionary Architects" exhibition, sponsored by the University of St. Thomas art department in October 1967, and a contributor to the exhibition catalog. See J.-C. Lemagny, *Visionary Architects: Boullee, Ledoux, Lequeu* (Houston: University of St. Thomas, 1968).

391. Conversation with H. Malcolm Lovett, 17 October 1977.

392. See the "Pulse" section of *Engineering News-Record*, 184 (16 April 1970), p. 37. Winton F. Scott, Kahn's project manager on the Rice scheme and subsequently assistant professor of architecture at Rice, was the source of the \$40,000,000 figure.

393. Ann Holmes, "The Spotlight: Louis Kahn Planning Possible Arts Complex, Theater at Rice," *Houston Chronicle*, 6 March 1970 and "Rice Ponders Future Xanadu of the Fine Arts," *Houston Post*, 6 March 1970. See also the final item in the Kahn-Rice correspondence file: James R. Sims to Louis I. Kahn, 1 July 1970, Louis I. Kahn Collection.

394. "Construction Begins, Fund Drive Continues," *Architecture at Rice Newsletter* (Spring 1980), entire issue, and Peter C. Papademetriou, "Report from Houston," *Progressive Architecture*, 61 (October 1980), pp. 21-22.

In accepting the Royal Institute of British Architects' Royal Gold Medal for Architecture for 1980, Stirling defended the Rice project: "We were asked to work within a limited range of bricks, pantiles, and pitched roofs which is reasonable for this eccentric but elegant campus where there are many arcades, marble balconies and fancy spires...It may be difficult to distinguish the facades of the new building from the existing ones and for those who think this design is uncharacteristically quiet or conventional, I would indicate that reserve and restraint—like the formalism of other projects—is not a change in our work." James Stirling, "Architectural Aims and Influences," *Journal of the Royal Institute of British Architects*, 87 (September 1980).

102 War Memorial Chapel,
Aisne-Marne American Cemetery,
Belleau Wood, France. Cram and
Ferguson, 1929. Rendering.

MANUSCRIPTS

WOODSON RESEARCH CENTER, FONDREN LIBRARY, RICE UNIVERSITY. The principal repository for materials related to the planning and architecture of the Rice Institute campus, including typescripts, personal and official papers, minutes, architectural drawings and photographs. These include:

George Kohledt, "The Architecture of the Rice Institute," typescript (1925); J.T. McCants, "Some Information Concerning the Rice Institute," 2 Volumes, typescript (1955); William Ward Watkin, "Architectural Traditions Appearing in the Earlier Buildings of the Rice Institute," typescript, Watkin Papers.

James Lockhart Autry Papers; Ray Watkin Hoagland Papers; Edgar Odell Lovett Papers; William M. Rice Institute—E. Raphael Papers; William Ward Watkin Papers; William Ward Watkin (Edgar Odell Lovett) Papers (materials so designated include the portion of the correspondence between Edgar Odell Lovett and Cram, Goodhue and Ferguson collected and maintained by William Ward Watkin and given to the Woodson Research Center with the rest of Watkin's papers; this correspondence is filed with the Edgar Odell Lovett Papers); Rice Institute Faculty Club Minutes.

Various architectural presentation and production drawings by Cram, Goodhue and Ferguson, Cram and Ferguson, William Ward Watkin, and others. Facsimiles of Cram, Goodhue and Ferguson and Cram and Ferguson Drawings Log pages for projects in Houston, Texas (originals in the possession of Hoyle, Doran and Berry, Architects, Boston, Massachusetts). Various photographs organized by building and campus location. Model of proposed arts center for Rice University by the Office of Louis I. Kahn.

OFFICE OF PLANNING AND CONSTRUCTION, RICE UNIVERSITY. Various architectural production drawings by Cram, Goodhue and Ferguson, Cram and Ferguson, William Ward Watkin, James Stirling and Michael Wilford, and others.

OFFICE OF THE TREASURER, RICE UNIVERSITY. William M. Rice Institute Minutes.

ARCHITECTURAL ARCHIVE, BOSTON PUBLIC LIBRARY. Various architectural production drawings by Cram, Goodhue and Ferguson and Cram and Ferguson for Rice Institute buildings and projects.

METROPOLITAN RESEARCH CENTER, HOUSTON PUBLIC LIBRARY. Joseph Stephen Cullinan Papers.

LOUIS I. KAHN ARCHIVE, GRADUATE SCHOOL OF FINE ARTS, UNIVERSITY OF PENNSYLVANIA. Various architectural drawings of proposed arts center for Rice University.

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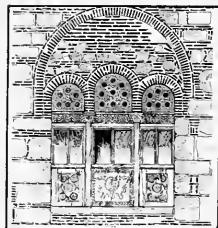
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APERTURE Any opening, such as that made in a wall for a window or a door.

ARCUATED Consisting of arches.

ASTYLAR Without columns.

AXIS An actual or implied line centrifugally regulating the placement of other elements.

BALUSTRADE A railing.

BARREL VAULT A vault of two dimensional curvature.

BAY The basic unit or module in a composition.

BELT COURSE A horizontal line in a wall, articulated to emphasize its engirding function.

BELVEDERE A point of prospect, usually elevated in height.

BOND The method or pattern in which bricks are laid.

BRACKET A device projecting beyond the face of a wall which supports some oversailing element, such as a cornice or gable.

CANT To incline along diagonal coordinates.

CHAMFER To cut along diagonal coordinates.

CHANNEL A continuous surface depressed below or behind that of the principal plane.

CLERESTORY Windows placed high up on a wall surface, usually just beneath the roof or ceiling.

COLOSSONE A constructional system of stone blocks reinforced with interspersed brick courses.

COLONNETE A short vertical point support; a small column.

COLOSSAL ORDER Columns which vertically encompass two or more floors.

COLUMN A vertical point support, traditionally composed of a base (where it joins the ground surface), a central shaft, and a capital (where it is joined with the elements which it supports).

CORBEL A projection from the face of a wall consisting of oversailing courses of brick or stone.

CORBEL TABLE A row of corbelled projections, shaped in an arcuated manner.

COURSE (MASONRY) A horizontal line of bricks or stones.

CROSS AXIS A subordinate axis which intersects a major axis, often perpendicularly.

DADO The lower part of a wall, usually set off from the upper part by some sort of horizontal dividing line.

DOMICAL VAULT A vault of semi-spherical curvature.

ENGAGE To partially sink one item into another.

ENGAGED COLUMN A column partially sunk into the wall surface behind it.

EXEDRA A semi-circular space hollowed out of a wall surface.

EVAN An enclosure roofed with intersecting vaults, open on one side to the out-of-doors.

FINIAL An ornamental device, usually of tapering configuration, projecting above the roof or parapet of a building.

FLEMISH BOND An ornamental masonry pattern in which courses consist of alternating headers (the short face of a brick) and stretchers (the long face of a brick).

FREE STANDING COLUMN A column whose shaft is not joined to any vertical surface.

FRIEZE A fascia band occurring in a wall surface just below its juncture with the roof.

GROIN VAULT A vault composed on intersecting two dimensionally curved surfaces with salient ribs occurring along the lines of intersection.

IMPOST BLOCK A block inserted between the top of a column or pier and the springing of an arch.

KLISMOS An ancient Greek chair type.

LOGGIA An enclosed space open on one side to the out-of-doors.

MOLDING A continuous strip which modulates the juncture between one surface and another.

MURAL Of, or pertaining to, a wall.

NICHE A ceremonial enclosure, often hollowed out of a wall surface.

OGEE A pointed arch configuration in which the arched members consist of opposed, double-flexed curves.

OPUS RETICULATUM An ornamental masonry pattern in which brick is laid in a herringbone configuration.

OPUS SPICATUM An ornamental masonry pattern in which a course of bricks is laid diagonally, to obtain a serrated edge.

PARAPET The portion of a wall surface which rises above the roof line of a building.

PARTI The conceptual arrangement of a building.

PERISTYLE A line of columns.

PIANO NOBILE The main floor of a building, located one level above the ground floor.

PILASTERS Vertical strips extruded from a wall surface.

PLATE TRACERY A type of tracery in which openings are punctured in a flat surface.

POLYCHROME Of many colors.

RELIEF Protruding from a background surface.

RELIEVING ARCH An enclosed arch framing a smaller opening in a wall.

REASSAULTED Projected, oversailing.

RINCEAU An ornamental pattern consisting of intertwined floral garlands.

RISALIT A projecting bay.

ROLLED SOFFIT A convex band occurring at the underside of an arch.

ROTARY A round obstruction which deflects movement into a circular or semicircular pattern.

ROUNDEL A round plaque, used for ornamental purposes.

SALIENT A projecting member.

SET BACK (STEPBACK) A massing configuration in which elements recede in planar gradation.

SLYPE A narrow, connecting passageway.

SPANDREL A member which spans between the openings of an arch; any spanning member, especially below a window opening.

SPRINGING (SPRING LINE) The point at which an arch begins to turn upward.

STAGE To configure in a successive pattern.

STATION LINE A line on a building which regulates the location of other items.

STILTED ARCH An arch vertically elongated in profile.

STYLAIR Of, or pertaining to, columns.

STYLAIR SCREEN A line of columns.

STYLOBATE The surface upon which columns are set; a base surface.

TABERNACLE A ceremonial enclosure.

TENDRIL An ornamental pattern simulating the continuous stem of a vine, often embellished with depictions of foliage.

TESSELATION Tile work.

TESSERA A small tile (plural: tesserae).

TRANSVERSE In a direction perpendicular to the primary line.

TRUSS An open-work framing structure used to carry a roof across an open space.

TYMPANUM The interstices of a pediment.

VAULT An arched ceiling or roof structure.

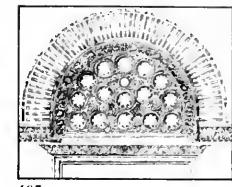
VERGEBOARD The raked member cladding the end surface of a gable.

VOUSSOIR The stone or brick components from which an arch is constructed.

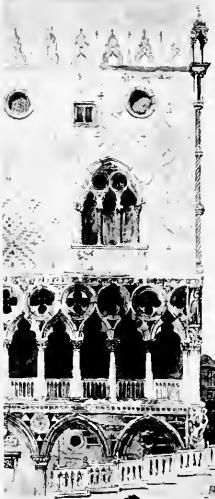
WEATHERING The inclined surfaces atop a wall which prevent precipitation from running down the face of the wall.

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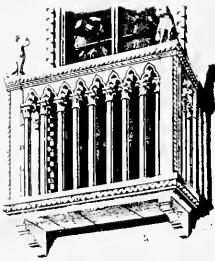
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